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MAY 1971

# FEED Situation

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PROCUREMENT SECTION  
CURRENT SERIAL RECORDS



Table 1.--Statistical summary of prices, indexes and price ratios, recent years and months

| Item                                                            | Unit            | Season average |         | 1970   |        | 1971   |        |        |  |
|-----------------------------------------------------------------|-----------------|----------------|---------|--------|--------|--------|--------|--------|--|
|                                                                 |                 | 1968/69        | 1969/70 | April  | Jan.   | Feb.   | March  | April  |  |
| FEED GRAIN AND HAY PRICES                                       |                 |                |         |        |        |        |        |        |  |
| Corn, No. 3 Yellow, Chicago                                     | Dol. per bu.    | 1.17           | 1.25    | 1.26   | 1.59   | 1.57   | 1.55   | 1.51   |  |
| Price received by farmers                                       | do.             | 1.08           | 1.15    | 1.15   | 1.42   | 1.43   | 1.43   | 1.41   |  |
| Oats, No. 1 White, Chicago                                      | do.             | .636           | .624    | ---    | .820   | .840   | .778   | ---    |  |
| No. 2 White, Minneapolis                                        | do.             | .641           | .632    | .665   | .775   | .754   | .688   | .681   |  |
| Price received by farmers                                       | do.             | .598           | .586    | .588   | .668   | .675   | .658   | .634   |  |
| Barley, No. 3, Minneapolis                                      | do.             | 1.15           | 1.08    | 1.09   | 1.24   | 1.29   | 1.25   | 1.26   |  |
| Price received by farmers                                       | do.             | .911           | .872    | .829   | 1.00   | 1.03   | 1.02   | 1.03   |  |
| Grain sorghum, No. 2 Yellow, Kansas City                        | Dol. per cwt.   | 2.00           | 2.10    | 2.04   | 2.38   | 2.36   | 2.33   | 2.55   |  |
| Price received by farmers                                       | do.             | 1.70           | 1.91    | 1.80   | 2.10   | 2.16   | 2.17   | 2.19   |  |
| All hay, baled, price received by farmers                       | Dol. per ton    | 23.60          | 24.70   | 24.10  | 25.40  | 25.80  | 26.00  | 26.10  |  |
| Alfalfa hay, baled, price received by farmers                   | do.             | 23.00          | 23.90   | 24.50  | 26.20  | 26.70  | 26.90  | 26.80  |  |
| PROCESSED FEED PRICES, BULK                                     |                 |                |         |        |        |        |        |        |  |
| Soybean meal, 44%, solvent, Decatur                             | Dol. per ton    | 74.10          | 78.40   | 74.60  | 80.25  | 77.50  | 77.00  | 74.25  |  |
| 49-50%, solvent, Decatur                                        | do.             | 82.50          | 86.60   | 83.10  | 86.10  | 82.40  | 82.00  | 80.50  |  |
| Cottonseed meal, 41%, expeller, Memphis                         | do.             | 65.20          | 72.50   | 64.90  | 77.40  | 73.60  | 66.80  | 68.25  |  |
| Linseed meal, 34%, solvent, Minneapolis                         | do.             | 68.40          | 67.90   | 67.50  | 63.90  | 63.50  | 59.40  | 57.00  |  |
| Peanut meal, 50%, S.E. mills                                    | do.             | 80.00          | 80.40   | 75.50  | 80.50  | 76.75  | 74.20  | 74.25  |  |
| Tankage digester, 60%, Chicago                                  | do.             | 94.90          | 109.50  | 116.90 | 105.00 | 98.10  | 102.30 | 96.25  |  |
| Meat meal, 50%, Chicago                                         | do.             | 91.60          | 107.10  | 115.60 | 101.90 | 92.60  | 98.00  | 92.50  |  |
| Fish meal, 60% New York (bagged)                                | do.             | 150.60         | 191.70  | 202.50 | 182.00 | 178.75 | 179.00 | 174.50 |  |
| Gluten feed, 21%, Chicago                                       | do.             | 43.70          | 47.80   | 42.00  | 59.00  | 50.25  | 50.00  | 48.50  |  |
| Brewers' dried grains, 24%, Milwaukee                           | do.             | 45.00          | 48.90   | 40.60  | 60.90  | 56.50  | 49.40  | 46.50  |  |
| Distillers' dried grains, 28%, Cincinnati                       | do.             | 55.30          | 57.90   | 52.00  | 68.25  | 68.75  | 64.50  | 61.00  |  |
| Wheat bran, Minneapolis                                         | do.             | 38.70          | 41.80   | 40.75  | 46.90  | 45.00  | 54.30  | 45.60  |  |
| Buffalo                                                         | do.             | 41.60          | 44.50   | 46.40  | 55.75  | 48.10  | 55.70  | 53.25  |  |
| Wheat middlings, Minneapolis                                    | do.             | 39.90          | 42.30   | 40.75  | 47.00  | 44.75  | 54.10  | 44.60  |  |
| Buffalo                                                         | do.             | 44.40          | 48.30   | 48.10  | 56.75  | 49.75  | 57.30  | 54.50  |  |
| Hominy feed, Chicago                                            | do.             | 41.10          | 43.20   | 40.10  | 52.40  | 43.40  | 46.70  | 47.90  |  |
| Molasses blackstrap, New York                                   | do.             | 23.10          | 27.40   | 28.20  | 26.70  | 27.20  | 27.60  | 29.10  |  |
| Beet pulp (molasses), Los Angeles                               | do.             | 45.50          | 50.40   | 50.50  | 57.70  | 57.70  | 57.70  | 57.70  |  |
| Alfalfa meal, 17%, dehydrated, Kansas City                      | do.             | 42.40          | 45.30   | 45.40  | 48.90  | 49.90  | 50.70  | 52.50  |  |
| Tallow, inedible prime, Chicago                                 | Cents per lb.   | .058           | .075    | .081   | .071   | .076   | .080   | .078   |  |
| Urea, 42%, N., Ft. Worth (bagged)                               | Dol. per ton    | 71.00          | 71.00   | 71.00  | 70.50  | 70.50  | 70.50  | 70.50  |  |
| PRICES PAID BY FARMERS                                          |                 |                |         |        |        |        |        |        |  |
| Soybean meal, 44%                                               | Dol. per cwt.   | 5.31           | 5.52    | 5.46   | 5.74   | 5.69   | 5.67   | 5.62   |  |
| Cottonseed meal, 41%                                            | do.             | 5.03           | 5.26    | 5.26   | 5.56   | 5.58   | 5.55   | 5.54   |  |
| Wheat bran                                                      | do.             | 3.48           | 3.64    | 3.65   | 4.08   | 4.09   | 4.11   | 4.14   |  |
| Wheat middlings                                                 | do.             | 3.59           | 3.72    | 3.74   | 4.20   | 4.15   | 4.18   | 4.24   |  |
| Broiler grower feed                                             | Dol. per ton    | 90.00          | 93.00   | 93.00  | 99.00  | 98.00  | 100.00 | 100.00 |  |
| Laying feed                                                     | do.             | 80.00          | 83.00   | 83.00  | 88.00  | 88.00  | 88.00  | 88.00  |  |
| Dairy feed, 16%                                                 | do.             | 71.00          | 73.00   | 73.00  | 81.00  | 80.00  | 80.00  | 80.00  |  |
| Beef cattle feed, 30% and over                                  | Dol. per cwt.   | 4.65           | 4.81    | 4.73   | 5.01   | 4.96   | 5.00   | 5.02   |  |
| Hog feed, over 29%                                              | do.             | 6.36           | 6.65    | 6.57   | 6.79   | 6.74   | 6.77   | 6.72   |  |
| Alfalfa hay, baled                                              | Dol. per ton    | 33.60          | 34.10   | 35.20  | 36.50  | 37.30  | 38.00  | 38.10  |  |
| PRICE INDEXES (1967=100)                                        |                 |                |         |        |        |        |        |        |  |
| Feed grains, prices received by farmers                         | Pct.            | 93             | 97      | 94     | 114    | 116    | 116    | 114    |  |
| Eleven high-protein feeds, at principal markets                 | do.             | 96             | 105     | 102    | 109    | 105    | 103    | 102    |  |
| Five oilseed meals                                              | do.             | 96             | 103     | 98     | 105    | 102    | 99     | 98     |  |
| Tankage, meat meal, and fish meal                               | do.             | 107            | 128     | 134    | 122    | 116    | 118    | 114    |  |
| Gluten feed, brewers' dried grains and distillers' dried grains | do.             | 95             | 103     | 97     | 117    | 109    | 106    | 103    |  |
| Feed, prices paid by farmers                                    | do.             | 96             | 100     | 99     | 108    | 108    | 108    | 108    |  |
| LIVESTOCK AND POULTRY/FEED PRICE RATIOS 1/                      |                 |                |         |        |        |        |        |        |  |
|                                                                 | Average (April) |                |         |        |        |        |        |        |  |
| Hog/corn, Omaha 2/                                              | :1966-70=16.9   | 18.5           | 20.4    | 20.0   | 11.0   | 13.2   | 11.9   | 11.3   |  |
| Hog/corn, U.S.                                                  | :1966-70=17.6   | 18.9           | 20.8    | 20.7   | 10.7   | 13.4   | 11.8   | 11.3   |  |
| Beef/steer/corn, Omaha 3/                                       | :1966-70=22.0   | 24.0           | 23.6    | 24.9   | 19.7   | 21.8   | 21.8   | 22.3   |  |
| Milk/feed, U.S.                                                 | :1966-70= 1.58  | 1.74           | 1.74    | 1.72   | 1.68   | 1.67   | 1.65   | 1.63   |  |
| Egg/feed, U.S.                                                  | :1966-70= 8.2   | 9.5            | 9.9     | 8.4    | 8.2    | 7.4    | 7.2    | 7.2    |  |
| Broiler/feed, U.S.                                              | :1966-70= 3.2   | 3.3            | 3.0     | 2.9    | 2.6    | 2.8    | 2.7    | 2.7    |  |
| Turkey/feed, U.S.                                               | :1966-70= 4.8   | 4.7            | 5.2     | 5.5    | 4.4    | 4.4    | 4.3    | 4.2    |  |

1/ Units of corn or other concentrates ration equal in value to 100 pounds of hog or beef steer, one pound of chicken, milk, or one dozen eggs. 2/ Based on packer and shipper purchases of hogs and No. 2 Yellow corn; prior to January 1971, No. 3 Yellow corn. 3/ Based on price of beef steers all grades sold out first hands for slaughter, and No. 2 Yellow corn; replaces Chicago.

Prices compiled from Chicago Board of Trade, Minneapolis Daily Market Record, Kansas City Grain Market Review, National Provisioner, Feedstuffs, and reports of the Consumer and Marketing Service.

# THE FEED SITUATION

## CONTENTS

|                                                                                                       | Page |
|-------------------------------------------------------------------------------------------------------|------|
| Summary .....                                                                                         | 3    |
| Feed Grain Supply and Utilization .....                                                               | 4    |
| Corn .....                                                                                            | 6    |
| Grain Sorghum .....                                                                                   | 11   |
| Oats .....                                                                                            | 12   |
| Barley .....                                                                                          | 12   |
| Total Feed Concentrates .....                                                                         | 14   |
| High-protein Feeds .....                                                                              | 17   |
| Special Article .....                                                                                 | 20   |
| PRESENT AND POTENTIAL MARKETS<br>FOR SAFFLOWER MEAL<br>by<br>Harry O. Doty Jr., and<br>John V. Lawler |      |
| Index of Tables .....                                                                                 | 28   |

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## SUMMARY

Feed grain usage in 1970/71 probably will fall a little short of last year's record high of 177 million tons. Hog and broiler producers are cutting back output from high levels of 1970. Also, cattle feeders are slowing their expansion rate. These curbs may already be taking their toll on domestic feed usage; it fell 3% in January-March. A similar feeding performance is likely over the next several months. However, total feed grain usage will exceed the short 1970 crop. And carryover into the 1971/72 season probably will be down to around 35 million tons, some 13 million below a year earlier.

Feed grain exports in October-April were up 5%. But competition from larger crops in Southern Hemisphere countries is becoming more intensive. Consequently, exports probably will drop this summer, reducing the total below last year's 21 million tons.

Farmers' feed grain prices during October-April averaged nearly a fifth above a year earlier. Corn prices rose more than seasonally from November to February. They have weakened some this spring, influenced by larger crops in Southern Hemisphere countries and by good progress in ground preparation and plantings of the U.S. crop. Prices will continue to be supported during the next few months by generally strong domestic demand and smaller supplies. Development of the 1971 crop will be a dominant market factor becoming increasingly important with the approach of harvest.

With higher prices prevailing, 1970-crop loan entries are below those of 1969. Farmers are redeeming more loans, and deliveries to CCC after maturity this summer will be negligible. Government stocks are relatively low and will be the smallest in several years at carryover time.

Farmers signed to set aside 18.7 million acres of corn and sorghum land, much less than the 39.5 million enrolled for program eligibility and diversion payments in 1970. The smaller idled acreage this year is due primarily to the elimination of voluntary diversion for payment. Program participation is up this year, however, with more farms and a larger based acreage enrolled than in 1970.

Corn usage so far in 1970/71 is running 5% below last year's high level with domestic use off 3% and exports 15%. For the whole year, usage will probably drop 6 or 7%. This implies a continuing slip in the disappearance rate during spring and summer. However, because of the smaller starting supply, the carryover next October will be in the area of 700 million bushels, down from 1 billion last year.

Heavy usage from a smaller supply probably will cut last year's grain sorghum carryover of 246 million bushels nearly in half by October 1. Oat disappearance will show only a modest increase, holding the carryover close to last July's record 490 million bushels. Both

feeding and exports of barley will be up sharply, reducing the carryover some 70-80 million bushels below the 237 million of 1970.

Consumption of high-protein feed this feeding year probably will reach 20½ million tons—up 2-3%. October-March usage was 4% higher but will likely slip from this rate, since hog and broiler producers are

slowing down output. Soybean meal feeding may total close to 14 million tons for the year, a modest increase from 1969/70's big consumption. Supplies of other oilmeals and grain proteins will be down, but animal proteins probably will show some gain. Mid-May prices of oilseed meals and grain proteins generally were higher than a year earlier, but animal proteins were lower.

## FEED GRAIN SUPPLY AND UTILIZATION

### April 1 Stocks Down 18 Million Tons

Continued heavy use of feed grains in the first half of 1970/71 reduced stocks to 98 million tons on April 1. This was 18 million less than on that date last year and the lowest level in 15 years. Both domestic use and exports of feed grains are expected to trail year-earlier levels during the remainder of the marketing year, leaving a carryover of around 35 million tons at the end of the year. This would be 13 million less than last year and the smallest since the mid-1950's.

Most of the April 1 stock reduction was in government holdings and grain under loan. Only 9 million tons was in CCC uncommitted inventory, nearly 6 million less than on April 1, 1970. The 22 million tons under loan was about 8 million less. The 68 million tons of feed grain in private ownership ("free" stocks) on April 1 dropped 5 million tons from a year earlier.

In April-September 1970, some 68 million tons of feed grains were required for domestic use and export. Carryover as "free" stocks was 17 million tons. Thus, April 1 "free" stocks last year were about 13 million tons short of total requirements. This amount of grain was withdrawn from government stocks by CCC sales and farmers' repayment of loans.

"Free" stocks are again short of expected requirements for the rest of the current marketing year, indicating farmers will redeem a substantial quantity of grain this spring and summer. Around half of the 35-million-ton carryover at the end of the current year may be government stocks compared with about two-thirds of the carryover at the beginning of the year.

### Domestic Use Lags A Little

Domestic use of feed grains during January-March was estimated at 42 million tons, slightly below last year's record, but 11% above the 1964-68 average for that quarter. While corn consumption was down 8% from the preceding year, much of this reduction was offset by increased use of grain sorghum and barley. For the first half of the feeding year (October-March) domestic consumption of feed grains was only about 1% below last year's record of close to 90 million tons.

Adjustments being made in livestock numbers and production point to a little smaller feed grain consumption this spring and summer than a year ago. The pattern should be similar to last season when domestic use in the second half of the year dropped more than seasonally from the heavy feeding of the fall and winter months. For the entire marketing year

domestic use may be 2 or 3 million tons below the record 156 million tons consumed in 1969/70.

### Exports High But Receding

Exports of feed grains totaled 12.9 million tons during October-April, 5% more than in that period of 1969/70. Less corn was exported but much more sorghum and barley. Export movement was heavy last winter but is slowing considerably this spring. After averaging over 2 million tons monthly in October-December, movement dropped to 1.6 million in March and was estimated at only about 1 million in April. Reduced export movement probably will continue through this spring and summer, with increasing competition from the Southern Hemisphere. For the entire marketing year, exports may drop around 10% below the 21 million tons shipped in 1969/70.

### Farmers To Idle Less Than Half 1970's Diversion

Farmers signed up to set aside 18.7 million acres from their corn-sorghum base under the 1971 feed grain program—less than half the 39.5 million enrolled for diversion in 1970. This drop was due largely to program changes. All of the acreage set aside this year is at the 20% level required for participating in the program. Last year farmers could also divert above the 20% level and received acreage diversion payments. Last year's acreage signed for diversion was nearly 43% of the base acreage of participants. Under the 1971 set-aside program, farmers are given more freedom than under the 1970 program. After meeting the set-aside and conserving base requirements there is no additional limitation on acreage farmers plant to feed grains.

1970 and 1971 signup results

|                                                     | Unit  | 1970  | 1971             |
|-----------------------------------------------------|-------|-------|------------------|
| Farms Enrolled . . . . .                            | Thou. | 1,614 | 1,759            |
| Base acreage on enrolled farms                      |       |       |                  |
| Corn . . . . .                                      | Mil.  | 59.9  | 72.1             |
| Sorghums . . . . .                                  | Mil.  | 19.4  | 21.3             |
| Barley . . . . .                                    | Mil.  | 13.2  | ( <sup>1</sup> ) |
| Total . . . . .                                     | Mil.  | 92.5  | 93.4             |
| Acreage signed for diversion <sup>2</sup> . . . . . | Mil.  | 39.5  | 18.7             |
| Diversion as a pct. of base . . . . .               | Pct.  | 42.7  | 20.0             |

<sup>1</sup> Barley not included in 1971 program.

<sup>2</sup> Not reported by individual grains; 1971 set-aside.

Table 2.--Feed grains: Supply and utilization, United States,  
average 1964-68, annual 1964-70

| Item                            | Marketing year beginning 1/ |       |       |       |       |       |       |       |
|---------------------------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                 | Average                     | 1964  | 1965  | 1966  | 1967  | 1968  | 1969  | 1970  |
|                                 | 1964-68                     |       |       |       |       |       | 2/    | 3/    |
| <u>Million tons</u>             |                             |       |       |       |       |       |       |       |
| <u>Supply</u>                   |                             |       |       |       |       |       |       |       |
| Carryover                       | 50.3                        | 69.3  | 54.8  | 42.1  | 37.1  | 48.3  | 50.2  | 48.4  |
| Production                      | 158.8                       | 134.2 | 157.4 | 157.6 | 176.0 | 168.9 | 174.6 | 159.0 |
| Imports 4/                      | .3                          | .4    | .3    | .3    | .3    | .3    | .4    | .5    |
| Total                           | 209.4                       | 203.9 | 212.5 | 200.0 | 213.4 | 217.5 | 225.2 | 207.9 |
| <u>Utilization</u>              |                             |       |       |       |       |       |       |       |
| Livestock feed                  | 124.7                       | 112.8 | 126.2 | 125.6 | 126.1 | 132.9 | 139.2 | 137.5 |
| Food, industry and seed         | 15.4                        | 14.7  | 15.1  | 15.3  | 15.7  | 16.0  | 16.4  | 16.5  |
| Exports 4/                      | 22.9                        | 21.6  | 29.1  | 22.0  | 23.3  | 18.4  | 21.2  | 18.9  |
| Total                           | 163.0                       | 149.1 | 170.4 | 162.9 | 165.1 | 167.3 | 176.8 | 172.9 |
| <u>Carryover at end of year</u> | 46.4                        | 54.8  | 42.1  | 37.1  | 48.3  | 50.2  | 48.4  | 35.0  |

1/ Corn and sorghum grain October-September; oats and barley July-June. 2/ Preliminary.

3/ Preliminary; utilization and carryover at end of year based on indications in May 1971.

4/ Includes grain equivalent of products.

Table 3.--Feed grain stocks: Government and "free" April 1, 1970 and 1971

| Item                                       | Corn  |       | Grain sorghum |      | Oats |      | Barley |      | Total 4/ feed grains |      |
|--------------------------------------------|-------|-------|---------------|------|------|------|--------|------|----------------------|------|
|                                            | 1970  | 1971  | 1970          | 1971 | 1970 | 1971 | 1970   | 1971 | 1970                 | 1971 |
|                                            |       |       |               |      |      |      |        |      |                      |      |
| <u>Million bushels</u>                     |       |       |               |      |      |      |        |      |                      |      |
| Under loan                                 |       |       |               |      |      |      |        |      |                      |      |
| Old grain resealed                         | 394   | 267   | 53            | 18   | 84   | 145  | 70     | 68   | 15.6                 | 11.9 |
| Under price support from preceding crop 1/ | 354   | 275   | 32            | 20   | 135  | 86   | 42     | 14   | 14.0                 | 10.0 |
| CCC-uncommitted balance                    | 284   | 102   | 156           | 120  | 76   | 137  | 49     | 23   | 14.7                 | 9.0  |
| Total Government                           | 1,032 | 644   | 241           | 158  | 295  | 368  | 161    | 105  | 44.3                 | 30.9 |
| "Free" 2/                                  | 1,959 | 1,887 | 267           | 201  | 379  | 334  | 171    | 154  | 72.4                 | 67.5 |
| Total U.S. stocks                          | 2,991 | 2,531 | 508           | 359  | 674  | 702  | 332    | 259  | 116.7                | 98.4 |

1/ Total placed under loan less repayments through March 31. 2/ Residual; privately held stocks.

Government stocks from operating reports of Agricultural Stabilization and Conservation Service.

In terms of number of farms and base acreage involved, the signup this year is well ahead of a year ago. The corn-sorghum base acreage on enrolled farms was 93.4 million, about 14 million more than for these 2 grains last year. Last year the total base acreage on enrolled farms (including barley) was 92.5 million acres, still slightly below this year's base. The 1,759,000 farms enrolled in the program also exceeded the 1,614,000 last year. Barley farms, were included in the 1970 program but excluded in 1971.

#### Feed Grain Sales Top \$4 Billion

Farm sales of 1970—crop feed grains totaled \$4.2 billion, up 5% from 1969 and the highest of record (table 17). Higher cash prices more than offset a 9% decline in volume totaling 91 million tons sold. In addition to the cash receipts from sales, farmers received about \$1.5 billion in payments under the government feed grain program, boosting total returns to \$5.7 billion, slightly above returns from the 1969 crop. Farmers sold about 57% of their 1970 feed grain crops, and retained 43% on farms, principally for livestock feed. These percentages were much the same as for 1969 crops.

Corn sales from the 1970 crop are estimated at 2,242 million bushels, 259 million less than in 1969 and the smallest since 1966. However, higher prices this year

boosted the value of sales to over \$3 billion for the first time. Quantities of each of the other 3 grains sold were down 5 or 6% from 1969, but higher prices resulted in slightly higher cash receipts.

Cash returns from feed grain crops

|                          | 1968      | 1969      | 1970      |
|--------------------------|-----------|-----------|-----------|
|                          | Mil. Dol. | Mil. Dol. | Mil. Dol. |
| From farm sales          |           |           |           |
| Corn .....               | 2,523     | 2,889     | 3,057     |
| Grain sorghum .....      | 568       | 627       | 632       |
| Oats .....               | 211       | 218       | 221       |
| Barley .....             | 286       | 270       | 284       |
| Total .....              | 3,588     | 4,004     | 4,194     |
| From Government Payments |           |           |           |
| Acreage diversion .....  | 738       | 916       | 771       |
| Price Support .....      | 626       | 728       | 739       |
| Total .....              | 1,364     | 1,644     | 1,510     |
| GRAND TOTAL .....        | 4,952     | 5,648     | 5,704     |

Hay sales are estimated at close to 25 million tons, about a million more than in 1969/70. The 5% increase in price, to \$26 per ton, boosted the value of hay sales 10% to a record \$645 million.

## CORN

#### Domestic Use Drops In January-March

April 1 corn stocks indicated a January-March domestic usage of 1.1 billion bushels, own nearly 100 million from a year earlier, but still well above the 1965-69 average. This brings usage for the first 6 months of the marketing year to about 2.3 billion bushels, or 75 million below last year's pace. Feed demand, heavy during October-December, is apparently starting to sag as livestock and poultry producers are slowing down production and expansion plans because of unfavorable livestock/poultry feed price ratios.

Domestic usage dropped more than seasonally during April-September, 1970. It probably will follow a similar pattern this year, perhaps dropping 3 or 4% from a year ago. This indicates a little under 4 billion bushels going into domestic usage during the entire season, or around 125 million less than in 1969/70.

#### Drop In Exports Forecast

Corn exports are meeting increasing competition from feed grains in South Hemisphere countries. October-April exports totaled a little over 300 million bushels, 17% less than a year ago. They averaged 10.6 million bushels a week during October-March but

dropped to an average of about 6½ million bushels during April (based on inspections). For the entire season, corn exports probably will be around a fourth less than the 612 million moved overseas in 1969/70. And most of the drop will be in the last half of the marketing year.

Argentina's 1971 harvest, forecast at 386 million bushels, is well above the recent 5-year average and should give an exportable supply at least as large as the 215 million bushels exported in the 1970/71 season.

Argentine corn supply and use

| Item               | April-March marketing year |          |          |
|--------------------|----------------------------|----------|----------|
|                    | 1969/70                    | 1970/71  | 1971/72  |
|                    | Mil. bu.                   | Mil. bu. | Mil. bu. |
| Carryover .....    | 4                          | 2        | 2        |
| Production .....   | 270                        | 369      | 386      |
| Total .....        | 274                        | 371      | 388      |
| Domestic use ..... | 125                        | 154      |          |
| Exports .....      | 147                        | 215      |          |
| Total .....        | 272                        | 369      |          |

Table 4.--Corn and grain sorghum: Supply and distribution, average 1964-68, annual 1964-70

| Item                             | Year beginning October |       |       |       |       |       |            |            |
|----------------------------------|------------------------|-------|-------|-------|-------|-------|------------|------------|
|                                  | Average<br>1964-68     | 1964  | 1965  | 1966  | 1967  | 1968  | 1969<br>1/ | 1970<br>2/ |
| <u>Million bushels</u>           |                        |       |       |       |       |       |            |            |
| <b>CORN</b>                      |                        |       |       |       |       |       |            |            |
| <u>Supply</u>                    |                        |       |       |       |       |       |            |            |
| Carryover (October 1)            | 1,102                  | 1,537 | 1,147 | 840   | 823   | 1,162 | 1,113      | 999        |
| Production                       | 4,168                  | 3,484 | 4,084 | 4,117 | 4,760 | 4,393 | 4,583      | 4,110      |
| Imports                          | 1                      | 1     | 1     | 1     | 1     | 1     | 1          | 5          |
| Total supply                     | 5,271                  | 5,022 | 5,232 | 4,958 | 5,584 | 5,556 | 5,697      | 5,114      |
| <u>Distribution</u>              |                        |       |       |       |       |       |            |            |
| Food and Industry 3/             |                        |       |       |       |       |       |            |            |
| Wet-process products 4/          | 209                    | 201   | 204   | 205   | 213   | 221   | 226        | 230        |
| Dry-process products:            |                        |       |       |       |       |       |            |            |
| Breakfast foods                  | 21                     | 19    | 20    | 21    | 21    | 22    | 22         | 22         |
| Cornmeal, hominy and<br>grits 5/ | 114                    | 110   | 111   | 117   | 117   | 114   | 116        | 120        |
| Alcohol and distilled<br>spirits | 32                     | 28    | 30    | 33    | 34    | 33    | 31         | 30         |
| Total                            | 376                    | 358   | 365   | 376   | 385   | 390   | 395        | 402        |
| Domestic Use                     |                        |       |       |       |       |       |            |            |
| Food and industry 3/             | 356                    | 338   | 348   | 355   | 365   | 374   | 381        | 386        |
| Seed                             | 12                     | 11    | 13    | 14    | 12    | 12    | 13         | 14         |
| Livestock feed 6/                | 3,302                  | 2,956 | 3,344 | 3,279 | 3,412 | 3,521 | 3,692      | 3,564      |
| Total domestic use               | 3,670                  | 3,305 | 3,705 | 3,648 | 3,789 | 3,907 | 4,086      | 3,964      |
| Exports                          |                        |       |       |       |       |       |            |            |
| Grain                            | 564                    | 550   | 670   | 466   | 613   | 520   | 598        | 434        |
| Products 3/                      | 19                     | 20    | 17    | 21    | 20    | 16    | 14         | 16         |
| Total                            | 583                    | 570   | 687   | 487   | 633   | 536   | 612        | 450        |
| Total utilization                | 4,253                  | 3,875 | 4,392 | 4,135 | 4,422 | 4,443 | 4,698      | 4,414      |
| Carryover at end of year         | 1,018                  | 1,147 | 840   | 823   | 1,162 | 1,113 | 999        | 700        |
| <b>GRAIN SORGHUM</b>             |                        |       |       |       |       |       |            |            |
| <u>Supply</u>                    |                        |       |       |       |       |       |            |            |
| Carryover (October 1)            | 428                    | 649   | 566   | 391   | 244   | 289   | 288        | 246        |
| Production                       | 675                    | 490   | 673   | 715   | 756   | 740   | 747        | 697        |
| Total supply                     | 1,103                  | 1,139 | 1,239 | 1,106 | 1,000 | 1,029 | 1,035      | 943        |
| <u>Distribution</u>              |                        |       |       |       |       |       |            |            |
| Domestic use                     |                        |       |       |       |       |       |            |            |
| Food and industry 7/             | 11                     | 11    | 11    | 11    | 11    | 11    | 7          | 7          |
| Seed                             | 2                      | 2     | 2     | 2     | 2     | 2     | 2          | 3          |
| Livestock feed 6/                | 547                    | 412   | 569   | 601   | 532   | 622   | 654        | 653        |
| Total domestic use               | 560                    | 425   | 582   | 614   | 545   | 635   | 663        | 663        |
| Exports (grain only)             | 187                    | 148   | 266   | 248   | 166   | 106   | 126        | 150        |
| Total utilization                | 747                    | 573   | 848   | 862   | 711   | 741   | 789        | 813        |
| Carryover at end of year         | 356                    | 566   | 391   | 244   | 289   | 288   | 246        | 130        |

1/ Preliminary. 2/ Preliminary; utilization and carryover at end of year based on indications in May 1971. 3/ Total quantities processed and breakdown between domestic use and exports. 4/ Used in production of starch, sirup and sugar; reported by members of Corn Refiners Association, Inc., 1963-66; 1967 to date unofficial estimates. 5/ Estimated quantities used commercially for food, for brewers' use and for farm household use. 6/ Residual; includes small quantities for other uses and waste. 7/ Alcohol, distilled spirits and wet-processing (not reported separately).

# South African corn supply and use

| Item               | May-April marketing year |                  |                 |
|--------------------|--------------------------|------------------|-----------------|
|                    | 1969/70                  | 1970/71          | 1971/72         |
|                    | <i>Mil. bu.</i>          | <i>Mil. bu.</i>  | <i>Mil. bu.</i> |
| Carryover .....    | 30                       | 34               | 28              |
| Production .....   | 204                      | 253              | 344             |
| Total .....        | <sup>1</sup> 254         | <sup>1</sup> 291 | 372             |
| Domestic use ..... | 194                      | 226              |                 |
| Exports .....      | 26                       | 37               |                 |
| Total .....        | 220                      | 263              |                 |

<sup>1</sup> Includes imports.

South Africa expects a corn harvest of around 345 million bushels and the largest crop since 1967. Even allowing for some further increase in its own needs, exports could reach 100 million bushels—following 2 years of small movement.

Other factors reflected in our smaller corn exports are the smaller supplies coupled with higher domestic prices. Larger exports of other feed grains (particularly sorghum and barley) more than made up for smaller corn shipments during October-March. Prices of these grains were low relatively to corn.

## Corn: U.S. exports to specified countries<sup>1</sup>

| Country of destination    | Year beginning October |                 |                 |                   |
|---------------------------|------------------------|-----------------|-----------------|-------------------|
|                           | 1969                   |                 |                 | 1970 <sup>2</sup> |
|                           | Oct.-Mar.              | Apr.-Sept.      | Total           | Oct.-Mar.         |
|                           | <i>Mil. bu.</i>        | <i>Mil. bu.</i> | <i>Mil. bu.</i> | <i>Mil. bu.</i>   |
| Canada <sup>3</sup> ..... | 27                     | 35              | 62              | 14                |
| United Kingdom ..         | 35                     | 18              | 53              | 34                |
| Belgium-                  |                        |                 |                 |                   |
| Luxembourg ....           | 13                     | 12              | 25              | 14                |
| Germany, West ...         | 17                     | 19              | 36              | 26                |
| Germany, East ....        | 12                     | 2               | 14              | 6                 |
| Netherlands .....         | 33                     | 45              | 78              | 40                |
| Italy .....               | 13                     | 23              | 36              | 24                |
| Greece .....              | 11                     | 3               | 14              | 6                 |
| Spain .....               | 21                     | 1               | 22              | 1                 |
| Japan .....               | 101                    | 79              | 180             | 57                |
| Other .....               | 35                     | 46              | 81              | 45                |
| Total .....               | 318                    | 283             | 601             | 267               |

<sup>1</sup> Grain only. <sup>2</sup> Preliminary. <sup>3</sup> Includes transshipments to other countries.

## Smaller Ending Stocks

Despite moderately reduced usage, smaller 1970/71 corn supplies will bring a substantial drop in the carryover next October 1. Stocks on April 1 totaled 2,531 million bushels, 460 million below a year earlier. If April-September estimated disappearance of 1,830 million bushels is realized, the October carryover will be around 700 million, some 300 million below last year.

"Free" stocks on April 1 totaled 1,887 million bushels, only 57 million above estimated usage during April-September, much less than is needed for total requirements, including "free" carryover. Even if "free" carryover on October 1 should be somewhat below last year's 426 million bushels, some corn for April-September consumption will have to come out of CCC stocks and the loan program. This would include corn from the 1967 and 1968 crop loan resale which totaled 173 million bushels on April 1. Farmers will redeem practically all of this corn, as market prices are above redemption costs and this corn is not eligible for resale.

## Corn: April 1 "free" stocks and April-September use

|                                      | 1969            | 1970            | 1971               |
|--------------------------------------|-----------------|-----------------|--------------------|
|                                      | <i>Mil. bu.</i> | <i>Mil. bu.</i> | <i>Mil. bu.</i>    |
| Apr. 1 "free" stocks .....           | 1,970           | 1,959           | 1,887              |
| Apr.-Sept.: .....                    |                 |                 |                    |
| Domestic use .....                   | 1,622           | 1,706           | <sup>1</sup> 1,655 |
| Exports .....                        | 306             | 286             | <sup>1</sup> 175   |
| Total .....                          | 1,928           | 1,992           | <sup>1</sup> 1,830 |
| From Govt. stocks <sup>2</sup> ..... | 344             | 459             |                    |
| "Free" carryover .....               | 386             | 426             |                    |

<sup>1</sup> Forecast May 1971. <sup>2</sup> Net withdrawal from CCC stocks and from the loan program.

April 1 government stocks of corn were down nearly 40% from last year's 1,032 million bushels. Most of the stocks are in loan positions, basically controlled by farmers. CCC's uncommitted balance around April 1 totaled 102 million bushels, substantially below the 284 million of a year earlier and the smallest since 1949.

From October 1 through late April, CCC sold 133 million bushels, around 100 million more than in that period of 1969/70. The bulk of the sales occurred in October-December 1970, when they averaged about 9 million bushels a week. But with declining inventories, January-April sales dwindled to a weekly average of less than a million bushels.

## Higher Prices Reduce Loan Activity

Farmers received an average of \$1.38 a bushel for corn during October-April, 26 cents above a year earlier. Prices rose from \$1.29 in November to \$1.43 in February and March (a little more than the usual seasonal rise), then dropped to \$1.41 in April. During April, farm prices were still 26 cents above a year ago. From mid-January to mid-May, No. 2 yellow at Chicago slipped from \$1.59 to \$1.51 a bushel—influenced by larger crops in Southern Hemisphere countries, and by good progress in ground preparation and plantings of the U.S. crop. Because of tighter supplies, corn prices may continue to keep much of their strength this summer. But development of the 1971 crop will dominate the market, especially as harvesttime approaches.

With prices much higher in relation to the loan rate, farmers are placing less corn under loan than last year.

Through April 30, they put 316 million bushels in the loan program, about 75 million less than in the same period of 1969/70 (table 16). As of May 1, farmers had redeemed 53 million, 6 million more than last year. Although some will likely be resealed at the end of the loan period (July 31) most of the loans will be redeemed. More of the loan corn will be needed for the market this summer, and the October 1 "free" carryover may be somewhere near the fairly high levels (386-449 million bushels) of recent years. Corn remaining under loan (including resale) and uncommitted CCC inventory next October 1 may be down to less than half of the 600 million bushels in government stocks held on October 1, 1970.

#### Disposition of corn placed under price support.

| Item                                          | Crop     |          |                   |
|-----------------------------------------------|----------|----------|-------------------|
|                                               | 1967     | 1968     | 1969 <sup>1</sup> |
|                                               | Mil. bu. | Mil. bu. | Mil. bu.          |
| Placed under price support <sup>2</sup> ..... | 497      | 404      | 398               |
| Redeemed by farmers .....                     | 105      | 263      | 290               |
| Delivered to CCC <sup>3</sup> .....           | 117      | 11       | 2                 |
| Resealed .....                                | 275      | 130      | 106               |

<sup>1</sup> Preliminary. <sup>2</sup> Placed under loan, plus deliveries to CCC under the purchase agreement program. <sup>3</sup> Does not include deliveries from resale program.

#### Seed Costs Increase More In the South And Eastern Corn Belt

U.S. seed corn prices (retail) in 1971 averaged about a fifth more than last year. The largest price increase occurred in the Southern States and Eastern Corn Belt where blight tolerant ("N" cytoplasm) varieties account for a relatively large portion of total seed corn purchased.

Seed prices in the East South Central States increased 81% from 1970's level of \$13.80 a bushel. Prices in the South Atlantic States rose from \$14.70 to \$22.70—a jump of 54%.

In the Corn Belt, seed prices rose most in the Eastern portion. Prices averaged \$18.80 a bushel in the East North Central Region, about a fifth above a year earlier

and slightly above prices paid by West North Central corn producers. Prices in the West North Central States rose 10% to \$18.00 a bushel.

#### Seed corn prices, selected States (Retail)

| State and division | April 15     |              | Increase |
|--------------------|--------------|--------------|----------|
|                    | 1970         | 1971         |          |
|                    | Dol. per bu. | Dol. per bu. | Pct.     |
| Ohio .....         | 14.2         | 17.5         | 23       |
| Ind. ....          | 14.1         | 16.2         | 15       |
| Ill. ....          | 17.5         | 22.0         | 26       |
| Mich. ....         | 14.0         | 17.4         | 24       |
| Wis. ....          | 12.6         | 14.5         | 15       |
| E. N. Cent. ....   | 15.5         | 18.8         | 21       |
| Minn. ....         | 17.6         | 20.4         | 16       |
| Iowa ....          | 17.0         | 18.5         | 9        |
| Mo. ....           | 14.2         | 15.0         | 6        |
| No. Dak. ....      | 15.2         | 16.8         | 11       |
| S. Dak. ....       | 15.6         | 16.7         | 7        |
| Nebr. ....         | 15.7         | 17.0         | 8        |
| Kans. ....         | 13.0         | 15.0         | 15       |
| W. N. Cent. ....   | 16.3         | 18.0         | 10       |
| Del. ....          | 15.5         | 17.1         | 10       |
| Md. ....           | 15.0         | 16.6         | 11       |
| Va. ....           | 13.5         | 16.5         | 22       |
| W. Va. ....        | 14.0         | 16.0         | 14       |
| N. C. ....         | 14.3         | 27.5         | 92       |
| S. C. ....         | 14.7         | 28.0         | 90       |
| Ga. ....           | 15.4         | 22.6         | 47       |
| Fla. ....          | 15.0         | 22.0         | 47       |
| S. Atl. ....       | 14.7         | 22.7         | 54       |
| Ky. ....           | 13.7         | 25.0         | 82       |
| Tenn. ....         | 13.0         | 22.9         | 76       |
| Ala. ....          | 14.6         | 26.9         | 84       |
| Miss. ....         | 14.7         | 25.7         | 75       |
| E. S. Cent. ....   | 13.8         | 25.0         | 81       |
| Ark. ....          | 14.0         | 25.0         | 79       |
| La. ....           | 14.0         | 20.0         | 43       |
| Okla. ....         | 12.7         | 13.5         | 6        |
| Texas ....         | 12.0         | 12.8         | 7        |
| W. S. Cent. ....   | 12.6         | 15.3         | 21       |
| U.S. ....          | 15.7         | 18.8         | 20       |

Agricultural prices, Statistical Reporting Service, USDA, April 1970 and 1971.

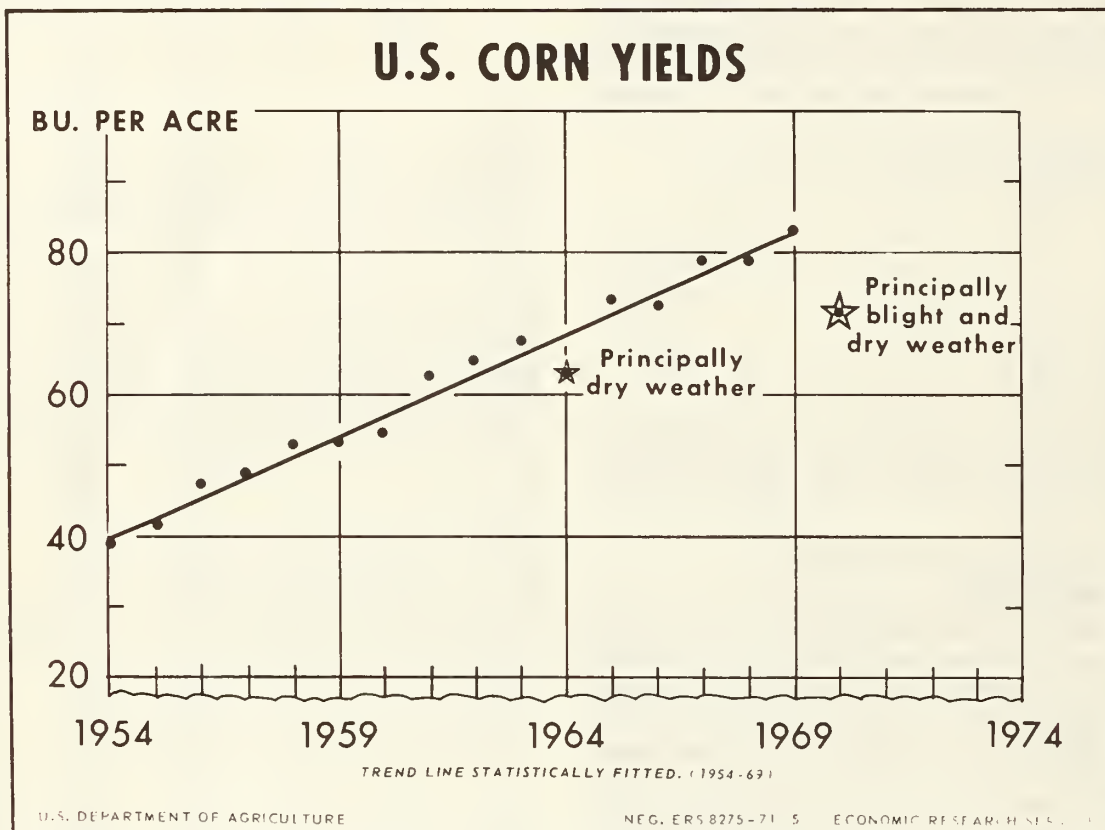
### FEDERAL-STATE INFORMATION CENTER COORDINATES NEWS ON 1971 BLIGHT SITUATION

The blight information center established this spring assembles, evaluates and distributes information concerning all aspects of the corn blight situation during 1971 crop season. Starting May 5, the information is being released weekly through USDA's Press Service Office.

## Blight Primary Cause of Sharp Drop In 1970 Corn Yield

Blight was the primary cause of the sharp break in U.S. corn yields from the steady upward trend, underway since 1954. The 12-bushel-per-acre drop from 1969 to 1970 was even greater than the 9-bushel drop from 1946 to 1947, but was less percentage wise. The

closeness of yields to the 1954-69 trend line is a phenomenon in the history of corn yields. In no earlier comparable period has there been as little relative variation. During these 16 years, in only 1 year (1964) did yield vary more than 2.4 bushels from the trend line. In that year when drought hit the Corn Belt, yield dropped, about 6 bushels below trend. In 1970, blight and drought together pushed actual yields much below the extended trend line.



Corn yield trend, 1954-70  
(bushels per harvested acre)

| Crop       | Actual | Trend <sup>1</sup> | Deviation from trend |
|------------|--------|--------------------|----------------------|
| 1954 ..... | 39.4   | 39.7               | -.3                  |
| 1955 ..... | 42.0   | 42.6               | -.6                  |
| 1956 ..... | 47.4   | 45.5               | 1.9                  |
| 1957 ..... | 48.3   | 48.4               | -.1                  |
| 1958 ..... | 52.8   | 51.3               | 1.5                  |
| 1959 ..... | 53.1   | 54.2               | -1.1                 |
| 1960 ..... | 54.7   | 57.1               | -2.4                 |
| 1961 ..... | 62.4   | 60.0               | 2.4                  |
| 1962 ..... | 64.7   | 62.9               | 1.8                  |
| 1963 ..... | 67.9   | 65.8               | 2.1                  |
| 1964 ..... | 62.9   | 68.7               | -5.8                 |
| 1965 ..... | 73.8   | 71.6               | 2.2                  |
| 1966 ..... | 72.3   | 74.5               | -2.2                 |
| 1967 ..... | 78.6   | 77.4               | 1.2                  |
| 1968 ..... | 78.6   | 80.3               | -1.7                 |
| 1969 ..... | 83.9   | 83.2               | .7                   |
| 1970 ..... | 71.7   | 86.1               | -14.4                |

<sup>1</sup> Computed from 1954-69 yields

# GRAIN SORGHUM

## 84% of Crop Used in First 6 Months

Grain sorghum disappearance in the first half of the marketing year totaled 583 million bushels, 11% above a year ago. Domestic usage was up 3% from last year's record level and exports of 103 million bushels were up about two-thirds. First half usage represented 84% of the crop, compared with 71% for the 1965-69 average. The carryover into 1971/72 will be down sharply from last year's 246 million bushels—perhaps to around 130 million.

Demand for sorghum will be influenced by drought conditions in the Southwest. During April, livestock auctions in Texas and Oklahoma reported heavier than usual runs of cattle—indicating some forced liquidations as well as heavier movement into feedlots. Also many parts of the Southwest have been made eligible for emergency aid. Light to moderate showers fell in the Southwest during the latter half of April but not enough to provide lasting relief. Cattle on feed in 8 Western States on April 1 were up 9% from a year earlier. Thus, demand for sorghum should continue fairly strong in the current quarter.

Because of prevailing weather patterns in the Southwest, time of planting is quite critical. In Texas the usual planting dates are before May 1 for most of the State. However, in the panhandle where moisture is critical, the planting period may be extended through May and June. The usual planting dates in Oklahoma range from April 25 to June 25. Dry weather has delayed spring field work in large areas of Texas and Oklahoma.

## Export To Drop

Sorghum exports in April-September probably will fall sharply from the heavy pace set during the first 6 months of the season. Larger feed grain crops in Southern Hemisphere countries will provide more competition. Domestic supplies are tightening and with drought in the Southwest there is more doubt as to the size of the 1971 sorghum crop.

After averaging 4 million bushels a week during October-March, sorghum exports (based on inspections) dropped to about a million bushels weekly during April. The current drop is largely due to the tightening of supplies, drought in the sorghum areas of the Southwest, and an increase in prices relative to corn. Prices of sorghum at Gulf Ports in mid-May were approaching 100% of corn compared with 89% 2-3 months earlier. Dry weather in the Southwest and uncertainties as to the crop size may tend to keep sorghum prices high in relation to corn this spring and summer.

Grain Sorghum: U.S. exports to specified countries, 1969-70

| Country of destination | Year beginning October |                  |                  |                   |
|------------------------|------------------------|------------------|------------------|-------------------|
|                        | 1969                   |                  |                  | 1970 <sup>2</sup> |
|                        | Oct.-Mar.              | Apr.-Sept.       | Total            | Oct.-Mar.         |
|                        | Mil. bu.               | Mil. bu.         | Mil. bu.         | Mil. bu.          |
| Belgium-               |                        |                  |                  |                   |
| Luxembourg . . . .     | 4                      | 2                | 6                | 6                 |
| Netherlands . . . .    | 1                      | 5                | 6                | 9                 |
| Germany, West . . .    | ( <sup>2</sup> )       | ( <sup>2</sup> ) | ( <sup>2</sup> ) | 1                 |
| Japan . . . . .        | 45                     | 39               | 84               | 65                |
| India . . . . .        | ---                    | ---              | ---              | ( <sup>2</sup> )  |
| Israel . . . . .       | 10                     | 11               | 21               | 10                |
| Other . . . . .        | 1                      | 7                | 8                | 13                |
| Total . . . . .        | 61                     | 64               | 125              | 104               |

<sup>1</sup> Preliminary. <sup>2</sup> Less than 500,000 bushels.

## Higher Prices Reduce Loan Activity

October-April farm prices of sorghum averaged \$2.10 a cwt., 11% above last year's relatively high level. With dry conditions in the Southwest, prices continued to strengthen, rising from \$2.02 last fall to \$2.19 in April 1971. April prices were 39 cents a cwt., above a year ago.

Since prices are averaging well above the \$1.61 loan rate, fewer sorghum producers are participating in the price support program. As of April 30, they had entered 30 million bushels under loan, 12 million below a year earlier (table 16). Producers repaid their loans on 15 million bushels, leaving around 15 million under loan as of April 30. Of the total put under loan, most will be redeemed, some will be resealed, and practically none will be delivered to CCC.

Disposition of grain sorghum placed under price support

| Item                                              | Crop     |          |                   |
|---------------------------------------------------|----------|----------|-------------------|
|                                                   | 1967     | 1968     | 1969 <sup>1</sup> |
|                                                   | Mil. bu. | Mil. bu. | Mil. bu.          |
| Placed under price support <sup>2</sup> . . . . . | 65       | 74       | 42                |
| Redeemed by farmers . . . . .                     | 29       | 38       | 19                |
| Delivered to CCC <sup>3</sup> . . . . .           | 1        | 5        | 1                 |
| Resealed . . . . .                                | 35       | 31       | 22                |

<sup>1</sup> Preliminary. <sup>2</sup> Placed under loan, plus deliveries to CCC under the purchase agreement program. <sup>3</sup> Does not include deliveries from resale program.

Only 32 million bushels of sorghum remained under loan on April 30, less than half the 85 million of a year earlier. Uncommitted CCC stocks of 120 million bushels

also are down sharply from last year. If estimates of requirements for April-September are realized around 75 million bushels of sorghum will have to come out of government loan and ownership, to maintain "free" carryover at near last year's 45 million.

Commodity Credit Corporation's sorghum sales through early May totaled 45 million bushels (averaging 1½ million weekly) little different from the same period last year. Most sales are going for unrestricted use; a year ago the bulk went for export.

## OATS

### Modest Gain in Usage; Carryover to Remain Large

Despite large supplies and favorable prices relative to other feed grains, only 7% more oats were used during the first 9 months of 1970/71. Oat stocks are concentrated in the Northern Plains States where prices are relatively low. Concentration of stocks in this area has tended to curtail feeding because of transportation costs to deficit areas. Farmers' oat prices rose from 57 cents a bushel last August to 68 cents in February, but dipped to 63 cents in April, 4 cents above a year ago. Prices of oats may continue to decline seasonally this spring and summer.

Domestic usage in April-June may hold up fairly well. Barley is also an important feed grain in those North Central States. With barley supplies tightening and prices holding firm, dairymen in these States may feed more oats in April-June.

Exports of oats, although a relatively small part of total feed grains, are substantially above those of recent years. During July-March, exports (including products) totaled 18 million bushels, compared with only 4 million that period last year. Exports for the entire marketing

year probably will total around 20 million bushels.

Disappearance for the entire 1970/71 marketing year likely will about equal the 1970 crop, leaving the carryover on July 1 fairly close to the record 490-million-bushel carryover last year.

### Price Support Activity Down

With prices averaging mostly above the 1970 loan rate (63 cents), farmers are placing less oats under loan this year. Through April 30, loans totaled 107 million bushels, 28% less than last year's record amount. This will be close to the final total as loans generally are not available after April 30.

Repayments of 1970 loans through April 30 totaled 21 million bushels, leaving 86 million under loan on May 1. Outstanding loans of earlier crops on that date totaled 142 million bushels, up 59 million from a year earlier. CCC owned 138 million bushels, bringing total government stocks to 366 million bushels, up about a fifth from May 1, 1970, making oats the only feed grain to show an increase in government positions over a year ago.

## BARLEY

### Heavy Usage To Trim Carryover

The barley carryover on July 1 probably will be down sharply—perhaps by as much as 75 million bushels below last year's 237 million. Both domestic usage and exports were heavy through the first 3 quarters of the marketing year. Domestic use, 100 million bushels in January-March, was up 5% from 1970 and is expected to continue large, bringing the total for the 1970/71 year to about 425 million bushels, up 11%.

### Exports Up Sharply

Exports also are playing an important part in reducing the barley carryover this July 1. During the first 10 months, exports (including products) amounted to 67 million bushels up sharply from only 3 million a year earlier. Most of the shipments are going to Europe through Canadian ports. Major factors behind the heavier movement are low barley prices relative to corn during most of the marketing year and the 1970 export sales program. Exports for the entire season will approximate 75 million bushels, a complete turn around from overseas movement of under 20 million bushels during the past 2 years.

### Higher Prices Brake Price Support Activity

Farmers' barley prices during July-April averaged 96 cents per bushel, almost 10 cents more than in 1969/70. Prices increased more than seasonally from 85 cents last August to \$1.03 in April. The April price was 20 cents above a year ago. With prospects for another large crop, barley prices probably will drop seasonally this spring and summer.

Since prices have averaged well above the loan rate, producers placed considerably less 1970 barley in the loan program. With the loan application period virtually completed, loan entries through April 30 totaled 27 million bushels, only about half as much as from the 1969 crop. Loan repayments of 15 million bushels are much heavier than last year.

Loan resale of 1965-69 crops of barley on May 1 amounted to 64 million bushels. With prices generally above redemption costs, most of this grain will probably be redeemed or extended for another season.

As of May 1 CCC owned (uncommitted balance) 23 million bushels, roughly double that of a year ago. CCC sold 6 million bushels of barley during July 1970-April 1971, about equally divided between sales for exports and unrestricted use.

Table 5.--Oats and barley: Supply and distribution, average 1964-68, annual 1964-70

| Item                                          | Year beginning July |       |       |       |       |       |            |            |
|-----------------------------------------------|---------------------|-------|-------|-------|-------|-------|------------|------------|
|                                               | Average<br>1964-68  | 1964  | 1965  | 1966  | 1967  | 1968  | 1969<br>1/ | 1970<br>2/ |
| Million bushels                               |                     |       |       |       |       |       |            |            |
| <b>OATS</b>                                   |                     |       |       |       |       |       |            |            |
| <b>Supply</b>                                 |                     |       |       |       |       |       |            |            |
| Carryover (July 1)                            | 290                 | 312   | 277   | 316   | 270   | 273   | 375        | 490        |
| Production                                    | 862                 | 852   | 927   | 801   | 789   | 939   | 950        | 909        |
| Imports 3/                                    | 3                   | 4     | 3     | 4     | 3     | 2     | 2          | 2          |
| Total supply                                  | 1,155               | 1,168 | 1,207 | 1,121 | 1,062 | 1,214 | 1,327      | 1,401      |
| <b>Distribution</b>                           |                     |       |       |       |       |       |            |            |
| Breakfast Food 4/                             | 47                  | 46    | 46    | 46    | 48    | 49    | 49         | 49         |
| Domestic Use                                  |                     |       |       |       |       |       |            |            |
| Breakfast food 4/                             | 44                  | 45    | 45    | 43    | 44    | 45    | 45         | 46         |
| Seed                                          | 59                  | 61    | 60    | 53    | 60    | 60    | 62         | 59         |
| Livestock feed 5/                             | 733                 | 780   | 749   | 735   | 675   | 726   | 725        | 786        |
| Total domestic use                            | 836                 | 886   | 854   | 831   | 779   | 831   | 832        | 891        |
| Exports                                       |                     |       |       |       |       |       |            |            |
| Breakfast food 4/                             | 3                   | 1     | 1     | 3     | 4     | 4     | 4          | 3          |
| Grain                                         | 13                  | 4     | 36    | 17    | 6     | 4     | 1          | 17         |
| Total exports                                 | 16                  | 5     | 37    | 20    | 10    | 8     | 5          | 20         |
| Total utilization                             | 852                 | 891   | 891   | 851   | 789   | 839   | 837        | 911        |
| Carryover at end of year                      | 303                 | 277   | 316   | 270   | 273   | 375   | 490        | 490        |
| <b>BARLEY</b>                                 |                     |       |       |       |       |       |            |            |
| <b>Supply</b>                                 |                     |       |       |       |       |       |            |            |
| Carryover (July 1)                            | 119                 | 132   | 100   | 105   | 122   | 138   | 199        | 237        |
| Production                                    | 393                 | 386   | 392   | 393   | 373   | 423   | 424        | 410        |
| Imports 3/                                    | 9                   | 12    | 8     | 7     | 8     | 10    | 13         | 12         |
| Total supply                                  | 521                 | 530   | 500   | 505   | 503   | 571   | 636        | 659        |
| <b>Distribution</b>                           |                     |       |       |       |       |       |            |            |
| Domestic Use                                  |                     |       |       |       |       |       |            |            |
| Industrial alcohol and<br>alcoholic beverages | 102                 | 95    | 97    | 103   | 104   | 108   | 117        | 115        |
| Food products 6/                              | 8                   | 7     | 8     | 8     | 8     | 8     | 8          | 8          |
| Seed                                          | 16                  | 16    | 17    | 16    | 17    | 16    | 16         | 17         |
| Livestock feed 5/                             | 218                 | 251   | 196   | 211   | 205   | 227   | 241        | 284        |
| Total domestic use                            | 344                 | 369   | 318   | 338   | 334   | 359   | 382        | 424        |
| Exports                                       |                     |       |       |       |       |       |            |            |
| Products                                      | 2                   | 3     | 2     | 2     | 2     | 2     | 2          | 2          |
| Grain                                         | 43                  | 58    | 75    | 43    | 29    | 11    | 15         | 73         |
| Total                                         | 45                  | 61    | 77    | 45    | 31    | 13    | 17         | 75         |
| Total utilization                             | 389                 | 430   | 395   | 383   | 365   | 372   | 399        | 499        |
| Carryover at end of year                      | 132                 | 100   | 105   | 122   | 138   | 199   | 237        | 160        |

1/ Preliminary. 2/ Preliminary; utilization and carryover at end of year based on indications in May 1971. 3/ Includes grain equivalent of products. 4/ Total processed into oatmeal and prepared oat cereals and breakdown between domestic use and exports. 5/ Residual; includes small quantities for other uses and waste. 6/ Includes barley used in malt for food, pearl barley and prepared cereals.

## TOTAL FEED CONCENTRATES

### Feeding Down Slightly In First Half of 1970/71

Nearly 102 million tons of all feed concentrates were fed to livestock and poultry during October-March, slightly below the record tonnage fed in that period of 1969/70. With grain consuming animals, up about 3% from last year, the rate of feeding per unit was .86 ton compared with .89 last year (table 7). In the past 2 years the feeding rate has dropped more than seasonally from the first to the last half of the feeding year. This pattern is expected to be repeated in 1970/71 and feeding in April-September probably will fall slightly below the 79 million tons fed in that period of 1970.

Feeding for the entire year will again be heavy-trailing by not more than 1 or 2% the record 181 million tons fed in 1970/71. The total quantity of feed grains fed is now estimated at close to 138 million tons, 2 million tons less than in 1969/70. Feeding of byproduct feeds will be near or slightly above last year's level.

Wheat feeding has continued heavy in 1970/71 as wheat prices have been low in relation to corn. For the 1970/71 feeding year wheat feeding may be about as large as the 230 million bushels fed in 1969/70.

### Feed Demand Cools

Demand for feed is being tempered this year from the high rate of 1969/70 by less favorable livestock feed-price ratios. Hog producers have been most adversely affected, as hog prices have been down sharply in relation to prices of corn and other feeds. The hog-corn ratio, based on U.S. farm prices, averaged only 11.9 during October-April, sharply below the very favorable 22.9 last year and the lowest in 15 years. In response, hog producers in the 10 Corn Belt States indicated plans for a 7% reduction in sows farrowing during March-May this year and 15% fewer during June-August. This will mean reduced feed requirements

of hogs from mid-1971 at least through the first quarter of 1972.

Farmers also have been hit by unfavorable feed-price ratios for broilers, eggs, and turkeys. Broiler chick placements during February-March were 6% below a year earlier and are expected to continue lower during April-June. While the current laying flock is slightly above a year earlier, a 7% reduction in the number of pullets entering the laying flock is expected this spring and summer. Turkey growers are not expected to expand output from last year's level.

Higher feed prices have also slowed the advance in cattle feeding. The number of cattle on feed January 1 was down 3% from a year earlier, with greatest reduction reported in the Corn Belt States. In April the number on feed was up 1% from a year ago. Marked increases in the Western and Southern Plains States slightly more than offset reductions in the Corn Belt. Higher corn prices are expected to continue to limit cattle feeding in the Corn Belt this spring and summer.

### Milk Cows Getting More Concentrates

Feeding of concentrate-type feeds to dairy cows in 1970 continued its long-term upward movement. Dairymen reported that they fed 25 million tons to their cows last year, 5% more than in 1969 and 25% more than 10 years ago (table 9). Despite declining cow numbers the dairy industry remains an important consumer of concentrate feeds. Concentrates fed to cows in 1970 accounted for roughly 14% of all concentrates fed to livestock and poultry.

The main reason behind the upward surge in concentrate consumption by dairy animals is their increasing production capacity. In 1970, a typical dairy cow received 3,979 pounds of concentrates, about 250 more than in 1969 and 1,720 more than in 1960. Dairymen are switching more to animals with greater feed intake for larger milk output.

Table 6.--Feed concentrate balance, animal units, and feed per unit, average 1964-68, annual 1964-70

| Item                                              | Year beginning October 1/ |       |       |       |       |       |         |         |
|---------------------------------------------------|---------------------------|-------|-------|-------|-------|-------|---------|---------|
|                                                   | 1964-68                   | 1964  | 1965  | 1966  | 1967  | 1968  | 1969    | 1970    |
|                                                   | average                   |       |       |       |       |       | 2/      | 3/      |
|                                                   | Million tons              |       |       |       |       |       |         |         |
| Supply of all concentrates                        | 245.1                     | 237.6 | 247.2 | 235.1 | 249.1 | 255.9 | 266.9   | 250.5   |
| Concentrates fed 4/                               |                           |       |       |       |       |       |         |         |
| Feed grains                                       | 124.7                     | 111.6 | 126.3 | 125.6 | 126.1 | 133.8 | 139.6   | 137.5   |
| Wheat and rye                                     | 4.2                       | 3.5   | 3.6   | 3.9   | 4.6   | 5.5   | 7.0     | 7.0     |
| Byproduct feeds                                   | 31.3                      | 30.2  | 31.1  | 31.2  | 31.1  | 32.9  | 34.7    | 35.0    |
| Total                                             | 160.2                     | 145.3 | 161.0 | 160.7 | 161.8 | 172.2 | 181.3   | 179.5   |
| Grain-consuming animal units (Mil.)               | 109.8                     | 105.9 | 106.3 | 111.5 | 111.5 | 113.8 | 5/115.5 | 5/118.5 |
| Supply of all concentrates per animal unit (Tons) | 2.23                      | 2.24  | 2.33  | 2.11  | 2.23  | 2.25  | 2.31    | 2.11    |
| All concentrates fed per animal unit (Ton)        | 1.46                      | 1.37  | 1.51  | 1.44  | 1.45  | 1.51  | 1.57    | 1.51    |

1/ Except oat and barley supplies which start on July 1. 2/ Preliminary. 3/ Based on indications in May 1971. 4/ Total quantities fed, including domestically produced and imported grains and byproduct feeds. 5/ Revised on the basis of regrouping dairy and beef cattle numbers for 1970 and 1971 in the January 1, 1971 inventory report.

Table 7.--Feed concentrates consumed by livestock and poultry, semiannually, 1964-70

| Item                                                   | Year beginning October |       |       |       |       |       |       |       |
|--------------------------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        | 1964-68                | 1964  | 1965  | 1966  | 1967  | 1968  | 1969  | 1970  |
|                                                        | average                |       |       |       |       |       |       | 1/    |
| Concentrates fed (Mil. tons)                           |                        |       |       |       |       |       |       |       |
| October-March                                          | 89.3                   | 84.6  | 88.8  | 88.8  | 86.9  | 97.6  | 102.3 | 101.5 |
| April-September                                        | 70.9                   | 60.7  | 72.2  | 71.9  | 74.9  | 74.6  | 79.0  |       |
| Total                                                  | 160.2                  | 145.3 | 161.0 | 160.7 | 161.8 | 172.2 | 181.3 |       |
| Grain-consuming animal units fed annually (Mil.)       | 109.8                  | 105.9 | 106.3 | 111.5 | 111.5 | 113.8 | 115.5 | 118.5 |
| Concentrates fed per grain-consuming animal unit (Ton) |                        |       |       |       |       |       |       |       |
| October-March                                          | .81                    | .80   | .84   | .80   | .78   | .86   | .89   | .86   |
| April-September                                        | .65                    | .57   | .67   | .64   | .67   | .65   | .68   |       |
| Total                                                  | 1.46                   | 1.37  | 1.51  | 1.44  | 1.45  | 1.51  | 1.57  |       |

1/ Preliminary.

Table 8.--Individual feeds as percentage of the total concentrate ration fed to milk cows in herds kept by dairy reporters, United States, 1956-70

| Year | Corn | Small grains | Barley and wheat | Oilseed meals | Cottonseed meal | Soybean meal | Wheat bran, shorts | Commercial mixed feeds | Miscellaneous | Total |
|------|------|--------------|------------------|---------------|-----------------|--------------|--------------------|------------------------|---------------|-------|
|      |      | Oats         |                  |               |                 | 1/           |                    |                        |               |       |
|      |      |              |                  |               |                 | Percent      |                    |                        |               |       |
| 1956 | 31.2 | 23.2         | 4.1              | 1.4           | 1.7             | 2.8          | 28.3               | 7.3                    | 100.0         |       |
| 1957 | 32.0 | 21.6         | 4.1              | 1.2           | 1.9             | 3.2          | 29.2               | 6.8                    | 100.0         |       |
| 1958 | 32.1 | 21.8         | 3.9              | 1.1           | 1.9             | 3.0          | 28.8               | 7.4                    | 100.0         |       |
| 1959 | 33.7 | 21.6         | 3.5              | .9            | 2.0             | 2.7          | 28.5               | 7.1                    | 100.0         |       |
| 1960 | 35.2 | 18.5         | 3.1              | .8            | 2.2             | 2.7          | 29.9               | 7.6                    | 100.0         |       |
| 1961 | 36.2 | 17.7         | 3.5              | .9            | 1.9             | 2.5          | 30.0               | 7.3                    | 100.0         |       |
| 1962 | 36.7 | 16.0         | 2.9              | .8            | 2.2             | 2.5          | 31.9               | 7.0                    | 100.0         |       |
| 1963 | 38.1 | 15.8         | 2.8              | .8            | 2.0             | 2.2          | 31.5               | 6.8                    | 100.0         |       |
| 1964 | 37.9 | 14.7         | 2.5              | .8            | 1.9             | 2.3          | 32.9               | 7.0                    | 100.0         |       |
| 1965 | 37.5 | 15.1         | 2.8              | .8            | 1.8             | 1.9          | 33.1               | 7.0                    | 100.0         |       |
| 1966 | 37.7 | 13.6         | 2.9              | .7            | 2.0             | 1.7          | 34.8               | 6.6                    | 100.0         |       |
| 1967 | 37.0 | 12.6         | 3.0              | .6            | 2.0             | 1.4          | 36.3               | 7.1                    | 100.0         |       |
| 1968 | 37.4 | 12.2         | 2.9              | .5            | 2.4             | 1.4          | 36.6               | 6.6                    | 100.0         |       |
| 1969 | 36.9 | 11.4         | 3.1              | .5            | 2.7             | 1.1          | 38.2               | 6.1                    | 100.0         |       |
| 1970 | 36.5 | 10.9         | 3.5              | .4            | 2.6             | 1.2          | 39.1               | 5.8                    | 100.0         |       |

1/ Includes small quantities of soybeans.

Compiled from Milk Production, Crop Reporting Board, SRS, May 11, 1971 and earlier issues.

Table 9.--Grain and other concentrates fed to milk cows, and related factors, 1956-70

| Calendar years | Grain and other concentrates fed to milk cows | Quantity fed per cow | Quantity fed per 100 pounds of milk | Milk-feed price ratio 1/ | Price of dairy ration per 100 pounds 2/ | Number of dairy cows January 1 3/ |
|----------------|-----------------------------------------------|----------------------|-------------------------------------|--------------------------|-----------------------------------------|-----------------------------------|
|                | 1,000 tons                                    |                      | Lb.                                 |                          | Dol.                                    | Mil.                              |
| 1956           | 19,098                                        | 1,825                | 30.2                                | 1.36                     | 3.00                                    | 22.9                              |
| 1957           | 19,946                                        | 1,945                | 31.2                                | 1.39                     | 3.00                                    | 22.3                              |
| 1958           | 19,809                                        | 2,005                | 31.3                                | 1.41                     | 2.89                                    | 21.3                              |
| 1959           | 19,803                                        | 2,050                | 31.5                                | 1.43                     | 2.89                                    | 20.1                              |
| 1960           | 19,821                                        | 2,259                | 32.2                                | 1.45                     | 2.88                                    | 19.5                              |
| 1961           | 20,916                                        | 2,404                | 33.2                                | 1.45                     | 2.89                                    | 19.3                              |
| 1962           | 21,617                                        | 2,533                | 34.3                                | 1.40                     | 2.92                                    | 19.0                              |
| 1963           | 21,858                                        | 2,646                | 35.1                                | 1.36                     | 3.01                                    | 18.4                              |
| 1964           | 22,464                                        | 2,800                | 35.9                                | 1.38                     | 3.01                                    | 17.6                              |
| 1965           | 22,827                                        | 2,953                | 36.7                                | 1.40                     | 3.02                                    | 17.0                              |
| 1966           | 4/22,569                                      | 4/3,200              | 37.6                                | 1.53                     | 3.14                                    | 4/14.5                            |
| 1967           | 22,790                                        | 3,374                | 38.3                                | 1.56                     | 3.22                                    | 13.8                              |
| 1968           | 22,886                                        | 3,519                | 39.1                                | 1.70                     | 3.10                                    | 13.2                              |
| 1969           | 23,615                                        | 3,726                | 40.7                                | 1.75                     | 3.15                                    | 12.8                              |
| 1970           | 24,870                                        | 3,979                | 42.4                                | 1.74                     | 3.28                                    | 12.6                              |

1/ Pounds of concentrate ration equal in value to one pound of whole milk. 2/ Average value of concentrate ration in milk and cream selling areas. 3/ Cows and heifers 2 years old and over kept for milk; beginning 1966, milk cows and heifers that have calved. Number on farms January 1, 1971 estimated at 12.4 million head. 4/ Data for 1966-70 not comparable with earlier years.

Compiled from Milk Production, Crop Reporting Board, SRS, May 11, 1971 and earlier issues.

## HIGH-PROTEIN FEEDS

### Feeding Trails Earlier Pace

High-protein feeds (44% soybean meal equivalent) fed in January-March totaled 5.0 million tons, off slightly from the preceding quarter but virtually the same as a year earlier. This may be a signal of some slowdown in protein feed demand. Hog and broiler producers are cutting output because of low feed-price ratios. Hogs and broilers are the leading consumers of protein feed.

Protein feeding the first half of the year totaled 10.3 million tons, up 2½% from a year ago. With high-protein consuming animal units forecast at 142 million, this gave an October-March feeding rate of 146 pounds per unit, practically the same as last year. Protein feeding for the year probably will be about 20½ million tons, about 0.4 million more than last year. This means that feeding for the year may slip a little from last year's record 291 pounds per animal unit.

Soybean meal and animal proteins will account for most of the 1970/71 increase in protein feeding. Feeding of other oilseed meals and grain protein feeds are running at a lower pace.

### Soybean Meal Feeding May Moderate

Soybean meal feeding is up about 4% from last year, but it probably will not quite match last year's pace in April-September. Slowdowns in livestock and poultry production are becoming more evident. However, soybean meal feeding for the entire year probably will total close to 14 million tons, 2-3% above last year.

At Decatur, soybean meal prices averaged \$78 a ton during October-April, virtually the same as a year ago. Prices in April averaged \$74, some \$8 under those last December and close to levels of a year ago. With prospects for tightening supplies, prices this summer may strengthen some from April levels but perhaps showing more month-to-month variation than in the first 6 months of the year.

### Cottonseed Crushed At Slower Pace; Prices Stable

Cottonseed meal production and feeding for the 1970/71 feeding season probably will approximate last year's 1.8 million tons. October-March output amounted to 1,242,000 tons, down 7%. However, crushing is running at two-thirds of the cottonseed crop compared with three-fourths in 1969/70. This means the crushing

season will be longer than usual this year, with heavier meal production during the spring and summer. Even though 1970 cottonseed production was up 2%, Mexico is importing some U.S. cottonseed which reduces domestic supplies for crushing.

Cottonseed meal prices were relatively stable during October-February—holding between \$73 and \$77 a ton at Memphis. But, prices in March and April fell to \$67-\$68 levels, \$2-\$3 above last year. With more cattle on feed in the Southwest, cottonseed meal demand may hold fairly strong over the next few months.

### Fishmeal Supplies Match Last Year's, Prices Decline

Fishmeal supplies available for feeding are about even with last year's pace. During October-March production plus imports amounted to 165,000 tons, about the same as those of a year ago. Imports of 98,000 tons were unchanged and domestic production of 67,000 remained practically the same. The current slow-down in broiler production may dampen any sharp increase in fishmeal consumption. But lower prices of meal could bring a modest increase over the 563,000 tons available for feeding last year.

After lingering around \$190 a ton in the fall, fishmeal prices started to soften some during the winter and spring. In April, meal at New York averaged \$174 a ton, some \$10-\$14 under levels last fall and \$28 below prices of a year ago.

### Meat Meal and Tankage Output Heavy In March

Meat meal and tankage output surged sharply in March, bringing the total to a little over 1 million tons in the first 6 months of the feeding year, 2% more than in 1969/70. March's production totaled 175,000 tons, up 11% from February. Larger production this year is due to heavy hog slaughter. Output for the entire season should show a small increase over last year's 2 million tons.

Meat meal and tankage prices are lower and generally much more stable this year. In April, meat meal at Chicago averaged \$92 a ton, \$23 below a year earlier. Prices since October ranged between \$92 and \$102 a ton. In that period of the preceding season, prices moved between \$93 and \$134. Tankage prices, at \$96 in April, also were off sharply from last year and had relatively narrow swings.

Table 10.--High-protein feed: Quantity available for feeding and high protein feed-consuming animal units, 1950-70

| Year beginning October | Quantity available for feeding (in terms of 44% protein soybean meal equivalent) |                |               |        | High-protein consuming animal units | Per animal unit |
|------------------------|----------------------------------------------------------------------------------|----------------|---------------|--------|-------------------------------------|-----------------|
|                        | Oilseed meal                                                                     | Animal protein | Grain protein | Total  |                                     |                 |
|                        | - - - - - 1,000 tons - - - - -                                                   |                |               |        | Million                             | Pounds          |
| 1950                   | 7,798                                                                            | 2,470          | 1,069         | 11,337 | 111.9                               | 203             |
| 1951                   | 8,224                                                                            | 2,638          | 816           | 11,678 | 113.1                               | 207             |
| 1952                   | 8,079                                                                            | 2,663          | 767           | 11,509 | 111.0                               | 207             |
| 1953                   | 7,842                                                                            | 2,969          | 825           | 11,636 | 111.7                               | 208             |
| 1954                   | 7,809                                                                            | 2,931          | 853           | 11,593 | 113.3                               | 205             |
| 1955                   | 8,471                                                                            | 3,233          | 897           | 12,601 | 116.8                               | 216             |
| 1956                   | 9,350                                                                            | 3,005          | 857           | 13,212 | 115.2                               | 229             |
| 1957                   | 10,116                                                                           | 2,838          | 859           | 13,813 | 115.3                               | 240             |
| 1958                   | 11,143                                                                           | 3,056          | 903           | 15,102 | 119.4                               | 253             |
| 1959                   | 10,655                                                                           | 3,103          | 972           | 14,730 | 118.4                               | 249             |
| 1960                   | 11,259                                                                           | 3,281          | 947           | 15,487 | 121.8                               | 254             |
| 1961                   | 11,687                                                                           | 3,421          | 1,052         | 16,160 | 122.3                               | 264             |
| 1962                   | 11,976                                                                           | 3,543          | 1,069         | 16,588 | 125.0                               | 265             |
| 1963                   | 11,656                                                                           | 3,753          | 1,136         | 16,545 | 125.8                               | 263             |
| 1964                   | 11,804                                                                           | 3,557          | 1,181         | 16,542 | 125.8                               | 263             |
| 1965                   | 12,689                                                                           | 3,577          | 1,238         | 17,504 | 128.3                               | 273             |
| 1966                   | 12,561                                                                           | 3,950          | 1,250         | 17,761 | 133.0                               | 267             |
| 1967                   | 12,240                                                                           | 4,290          | 1,283         | 17,813 | 131.8                               | 270             |
| 1968                   | 13,520                                                                           | 3,868          | 1,298         | 18,686 | 134.9                               | 277             |
| 1969 1/                | 15,311                                                                           | 3,487          | 1,320         | 20,118 | 3/138.2                             | 291             |
| 1970 2/                | 15,575                                                                           | 3,650          | 1,300         | 20,525 | 3/142.0                             | 289             |

1/ Preliminary. 2/ Based on May 1971 indications. 3/ Revised on the basis of regrouping dairy and beef cattle numbers for 1970 and 1971 in the January 1, 1971 inventory report.

Table 11.--Processed feeds: Estimated use for feed, average 1964-68, annual 1964-70 1/

| Item                         | Year beginning October |        |        |        |        |        |        |            |
|------------------------------|------------------------|--------|--------|--------|--------|--------|--------|------------|
|                              | Average<br>1964-68     | 1964   | 1965   | 1966   | 1967   | 1968   | 1969   | 1970<br>2/ |
|                              |                        |        |        |        |        |        |        |            |
|                              | 1,000 tons             |        |        |        |        |        |        |            |
| HIGH-PROTEIN FEEDS           |                        |        |        |        |        |        |        |            |
| Total oilseed meal           | 13,098                 | 12,422 | 13,338 | 13,028 | 12,650 | 14,054 | 15,770 | 16,050     |
| Animal proteins              |                        |        |        |        |        |        |        |            |
| Tankage and meat meal        | 2,008                  | 1,932  | 1,960  | 2,068  | 2,059  | 2,021  | 2,014  | 2,100      |
| Fish meal and solubles       | 799                    | 625    | 627    | 827    | 1,083  | 835    | 563    | 600        |
| Milk products                | 686                    | 751    | 729    | 680    | 650    | 620    | 650    | 655        |
| Total                        | 3,493                  | 3,308  | 3,316  | 3,575  | 3,792  | 3,476  | 3,227  | 3,355      |
| Grain protein feeds          |                        |        |        |        |        |        |        |            |
| Gluten feed and meal         | 1,488                  | 1,406  | 1,481  | 1,486  | 1,514  | 1,550  | 1,574  | 1,575      |
| Brewers' dried grains        | 318                    | 295    | 304    | 324    | 336    | 333    | 360    | 360        |
| Distillers' dried grains     | 429                    | 409    | 426    | 425    | 447    | 437    | 428    | 400        |
| Total                        | 2,235                  | 2,110  | 2,211  | 2,235  | 2,297  | 2,320  | 2,362  | 2,335      |
| OTHER PROCESSED FEEDS        |                        |        |        |        |        |        |        |            |
| Wheat millfeeds              | 4,557                  | 4,715  | 4,612  | 4,499  | 4,490  | 4,469  | 4,633  | 4,550      |
| Rice millfeeds               | 442                    | 395    | 395    | 451    | 476    | 494    | 490    | 490        |
| Dried and molasses beet pulp | 1,244                  | 1,289  | 1,153  | 1,129  | 1,130  | 1,523  | 1,600  | 1,550      |
| Alfalfa meal                 | 1,600                  | 1,536  | 1,652  | 1,599  | 1,550  | 1,662  | 1,535  | 1,475      |
| Fats and oils                | 461                    | 363    | 427    | 486    | 496    | 531    | 545    | 570        |
| Molasses                     | 3,046                  | 2,900  | 2,860  | 3,060  | 3,100  | 3,310  | 3,450  | 3,575      |
| Miscellaneous                | 1,100                  | 1,100  | 1,100  | 1,100  | 1,100  | 1,100  | 1,100  | 1,100      |
| Total                        | 12,450                 | 12,298 | 12,199 | 12,324 | 12,342 | 13,089 | 13,353 | 13,310     |
| Total all byproducts feeds   | 31,276                 | 30,138 | 31,064 | 31,162 | 31,081 | 32,939 | 34,712 | 35,050     |

1/ Adjusted for stocks, production, foreign trade and nonfeed uses where applicable. 2/ Preliminary; based on indications in May 1971.

Table 12.--Oilseed meal: Supply and utilization, United States,  
October-March 1969/70 and 1970/71

| Item       | Supply                |            |         |            | Utilization               |         |                       |
|------------|-----------------------|------------|---------|------------|---------------------------|---------|-----------------------|
|            | Stocks<br>(Oct. 1) 1/ | Production | Imports | Total      | Domestic use<br>(feed) 2/ | Exports | Stocks<br>(Apr. 1) 1/ |
|            |                       |            |         |            |                           |         |                       |
|            |                       |            |         | 1,000 tons |                           |         |                       |
| 1969       |                       |            |         |            |                           |         |                       |
| Soybean    | 157                   | 8,768      | ---     | 8,925      | 6,734                     | 2,041   | 150                   |
| Cottonseed | 65                    | 1,335      | 1       | 1,401      | 1,251                     | 4       | 146                   |
| Linseed    | 8                     | 130        | 1       | 139        | 88                        | 47      | 4                     |
| Peanut     | 2                     | 70         | ---     | 72         | 67                        | ---     | 5                     |
| Copra      | 1                     | 52         | ---     | 53         | 53                        | ---     | 3/                    |
| Total      | 233                   | 10,355     | 2       | 10,590     | 8,193                     | 2,092   | 305                   |
| 1970 4/    |                       |            |         |            |                           |         |                       |
| Soybean    | 137                   | 9,275      | ---     | 9,412      | 7,029                     | 2,230   | 153                   |
| Cottonseed | 39                    | 1,242      | ---     | 1,281      | 1,124                     | 20      | 137                   |
| Linseed    | 17                    | 166        | 1       | 184        | 127                       | 36      | 21                    |
| Peanut     | 1                     | 93         | ---     | 94         | 87                        | ---     | 7                     |
| Copra      | 3/                    | 50         | ---     | 50         | 50                        | ---     | 3/                    |
| Total      | 194                   | 10,826     | 1       | 11,021     | 8,417                     | 2,286   | 318                   |

1/ Stocks at processors' plant. 2/ Includes quantities of soybean meal used for industrial purposes and cottonseed meal used for fertilizer on farms of cotton growers. 3/ Not reported. 4/ Preliminary.

Table 13.--Oilseed meal: Supply and utilization, United States, 1968/69, 1969/70,  
and 1970/71

| Year<br>beginning<br>October | Supply                |            |         |            | Utilization               |         |        |
|------------------------------|-----------------------|------------|---------|------------|---------------------------|---------|--------|
|                              | Stocks<br>(Oct. 1) 1/ | Production | Imports | Total      | Domestic use<br>(feed) 2/ | Exports | Total  |
|                              |                       |            |         |            |                           |         |        |
|                              |                       |            |         | 1,000 tons |                           |         |        |
| 1968                         |                       |            |         |            |                           |         |        |
| Soybean                      | 145                   | 14,581     | ---     | 14,726     | 11,525                    | 3,044   | 14,569 |
| Cottonseed                   | 108                   | 2,029      | 29      | 2,166      | 2,086                     | 15      | 2,101  |
| Linseed                      | 14                    | 267        | 2       | 283        | 197                       | 78      | 275    |
| Peanut                       | 3                     | 134        | ---     | 137        | 135                       | ---     | 135    |
| Copra                        | 2                     | 110        | ---     | 112        | 111                       | ---     | 111    |
| Total                        | 272                   | 17,121     | 31      | 17,424     | 14,054                    | 3,137   | 17,191 |
| 1969 3/                      |                       |            |         |            |                           |         |        |
| Soybean                      | 157                   | 17,596     | ---     | 17,753     | 13,581                    | 4,035   | 17,616 |
| Cottonseed                   | 65                    | 1,786      | 1       | 1,852      | 1,794                     | 19      | 1,813  |
| Linseed                      | 8                     | 273        | 2       | 283        | 182                       | 84      | 266    |
| Peanut                       | 2                     | 121        | ---     | 123        | 122                       | ---     | 122    |
| Copra                        | 1                     | 90         | ---     | 91         | 91                        | ---     | 91     |
| Total                        | 233                   | 19,866     | 3       | 20,102     | 15,770                    | 4,138   | 19,908 |
| 1970 4/                      |                       |            |         |            |                           |         |        |
| Soybean                      | 137                   | 17,900     | ---     | 18,037     | 13,800                    |         |        |
| Cottonseed                   | 39                    | 1,775      | ---     | 1,814      | 1,750                     |         |        |
| Linseed                      | 17                    | 325        | 1       | 343        | 250                       |         |        |
| Peanut                       | 1                     | 150        | ---     | 151        | 150                       |         |        |
| Copra                        | 5/                    | 100        | ---     | 100        | 100                       |         |        |
| Total                        | 194                   | 20,250     | 1       | 20,445     | 16,050                    |         |        |

1/ Stocks at processors' plants. 2/ Includes quantities of soybean meal used for industrial purposes and cottonseed meal used for fertilizer on farms of cotton growers. 3/ Preliminary. 4/ Forecast (except stocks)--based on indications in May 1971. 5/ Not reported.

# PRESENT AND POTENTIAL MARKETS FOR SAFFLOWER MEAL

BY

Harry O. Doty, Jr., and John V. Lawler<sup>1</sup>

**ABSTRACT:** Regular safflower meal's major use is in dairy and beef cattle feed in the California-Arizona area where produced. Partially hulled safflower meal is preferred over cottonseed meal for use in laying rations and also finds use in other poultry rations. Future safflower meal demand will have modest growth because of the fewer feeding restrictions it has compared to nonprotein nitrogen and the technological advantages of partially hulled safflower meal over cottonseed meal. Additional markets for safflower hulls need to be developed.

**Key Words:** Safflower meal, safflower, safflower seed

In recent years, safflower meal production has ranged from about 135 to 305 million pounds (67.5 to 152.5 thousand tons), representing about one-fifth of the product value of safflower seed. Most "regular" safflower meal, a byproduct of safflower seed crushing operations, analyzes between 18 and 24 percent protein, and is usually sold on a 20 percent protein basis. It also contains about 31 percent fiber and 1 percent fat. Sometimes regular safflower meal is processed into range pellets for livestock feeding. Most of the safflower meal is consumed in the California-Arizona area where it is produced because of its bulky nature and the protein feed deficiency of this area.

A relatively new product, high-protein safflower meal, is also commercially available. To produce this product, safflower seed is partially hulled (two-thirds of the hulls removed). Partial hull removal greatly reduces the amount of fiber in the meal, doubles protein content, raises energy level, improves appearance, reduces the breaking up of pellets, and decreases its sponginess. Partially hulled safflower meal contains about 42 percent protein and 15 percent fiber. If more of the hulls were removed, a higher protein safflower meal could be produced. Composition of regular and partially hulled safflower meals, with analyses of cottonseed and soybean meals for comparison, are shown in the table below.

To examine present and potential domestic markets for safflower meal, feed mill operators and meal producers in the major safflower producing areas of California and Arizona were surveyed. Only livestock and poultry feed uses have been considered since edible uses of safflower meal currently are commercially nonexistent.

Safflower meal use by feed mills started as early as 1955. There has been a growing acceptance of safflower meal as a feed ingredient since then. Some large feed manufacturing companies indicated they would have

started using it sooner or incorporated it in more kinds of formula feeds had the supply been larger.

Composition of safflower and competing oilseed meals—selected characteristics

| Analyses                                     | Safflower meal, regular  | Safflower meal, partially hulled |
|----------------------------------------------|--------------------------|----------------------------------|
| Metabolizable energy (poultry) cal./Kg. .... | 1,160                    | 1,690                            |
|                                              | Percent                  | Percent                          |
| Protein .....                                | 22.0                     | 42.0                             |
| Fat .....                                    | 1.0                      | 1.3                              |
| Fiber .....                                  | 31.0                     | 15.1                             |
| T.D.N. <sup>1</sup> (ruminant) .....         | 52.0                     | 64.1                             |
| <i>Critical amino acids</i>                  |                          |                                  |
| Arginine .....                               | 1.9                      | 3.5                              |
| Lysine .....                                 | .7                       | 1.3                              |
| Methionine .....                             | .33                      | .63                              |
| Cystine .....                                | .35                      | .67                              |
| Tryptophan .....                             | .26                      | .54                              |
| Glycine .....                                | 1.1                      | 2.1                              |
|                                              | Cottonseed meal, solvent | Soybean meal, solvent            |
| Metabolizable energy (poultry) cal./Kg. .... | 2,024                    | 2,420                            |
|                                              | Percent                  | Percent                          |
| Protein .....                                | 41.0                     | 44.0                             |
| Fat .....                                    | 3.5                      | .5                               |
| Fiber .....                                  | 13.0                     | 7.0                              |
| T.D.N. <sup>1</sup> (ruminant) .....         | 72.0                     | 78.0                             |
| <i>Critical amino acids</i>                  |                          |                                  |
| Arginine .....                               | 3.6                      | 3.4                              |
| Lysine .....                                 | 1.7                      | 2.9                              |
| Methionine .....                             | .6                       | .65                              |
| Cystine .....                                | .8                       | .67                              |
| Tryptophan .....                             | .5                       | .7                               |
| Glycine .....                                | 1.9                      | 2.4                              |

<sup>1</sup> Total digestible nutrients.

Source: Richard D. Allen, Ingredient analysis table, *Feedstuffs*, 1970 Yearbook, page 86.

<sup>1</sup> Agricultural Economists, Economic Research Service.

## Safflower Meal Uses

Safflower meal was incorporated by feed mills into a wide variety of feeds, at both high and low percentage levels and for a great diversity of purposes. Regular (20 percent protein) safflower meal was the most widely used safflower meal product. Its greatest use was in dairy cattle feeds where it usually made up about 10 percent of the feed formulation. The level of use ranged from 2½ to 25 percent. Use in beef cattle feed was the second largest use. In beef cattle, calf, and sheep feeds, regular safflower meal was used at levels of 5 to 10 percent. According to some feed formulators, 2 pounds of regular safflower meal can substitute for 1 pound of cottonseed meal and 1 pound of cottonseed hulls in ruminant rations.

Feed mills manufacture several kinds of chicken and turkey feeds with regular safflower meal as an ingredient, and its level of use ranged from 2 to 10 percent. It was used at the higher levels to formulate low lysine feed, primarily chick and turkey starter and pullet grower rations, and at the lower levels in laying rations. It was also used in swine and rabbit feeds.

Partially hulled safflower meal (42 percent protein), while not used as widely by feed manufacturers as regular safflower meal, was being incorporated in chicken and turkey feeds. Partially hulled safflower meal was used as a source of protein in laying rations because it does not contain toxic elements. It most often replaced cottonseed meal and sometimes grape pumice in poultry feeds.

In the safflower meal marketing area of California and Arizona, cottonseed meal was the most widely used high-protein feed ingredient and the one most often replaced by safflower meal in formula feeds. Regular safflower meal most frequently replaced cottonseed meal in dairy and beef cattle rations. Safflower meal with added fat was used to extend or replace copra meal in dairy rations. It also substituted for rice bran, orange pulp, and soybean meal in some dairy rations. In some beef cattle feeds, regular safflower meal replaced barley, milo, soybean meal, and urea in addition to cottonseed meal. In rabbit feed it substituted for alfalfa meal.

## Factors Influencing Demand for Safflower Meal

A technological advantage of safflower meal is the absence of gossypol or other toxic or deleterious elements which would limit its use in livestock rations. Laying hens fed cottonseed meal containing gossypol can produce undesirable eggs; upon storage, their whites turn pink and their yolks turn green. Partially hulled safflower meal can be substituted for cottonseed meal in layer rations and thus avoid this problem. Regular safflower meal was not considered competitive with some protein feed ingredients (copra meal, linseed meal, meat meal, feather meal, and fish meal) which are often used for special purposes in a ration. As an ingredient for mixed feeds, regular safflower meal has several physical

advantages over some other feed ingredients. It has the desirable characteristics of: flows well, slides out of bins, and handles easily. Safflower meal, if ground properly, makes a better pelleted feed.

Regular safflower meal is used in some rations because of its relatively high fiber content. Turkeys and other animals need some fiber for bulk in their ration, and it is also fed in conjunction with alfalfa hay to prevent the alfalfa from going through the animal's rumen too fast and thus losing some of its nutrient value. Some uses of regular safflower meal hinge on its low lysine content, which enables it to be used in holding rations for chicken and turkey pullets. A relatively low lysine ration serves the useful functions of retarding pullet growth and delaying sexual maturity.

The technological or physical problems associated with the use of regular safflower meal as a feed ingredient were (1) its relatively high fiber content, (2) low energy content, (3) pellets tend to fracture or break up (the coarseness of the grind of some meal causes pellets to fracture), (4) pellet dies wear out more quickly, and (5) poor palatability at high levels of incorporation due to its bitterness (particularly in cattle feeds). This bitterness can be masked by adding molasses, anise, or licorice to the ration. University of California scientists have recommended limiting regular safflower meal to 25 percent of a dairy cattle ration because of the palatability problem. Other criticisms of safflower meal concerned its gray color and low lysine content.

The dominant economic reason for the use of safflower meal was its lower cost of protein in comparison with other available meals. The price of regular safflower meal will need to continue to be half the price (actual or on an amino basis) of cottonseed meal or less for regular safflower meal use in feed to increase substantially. It was also considered a low-cost source of consumable fiber. Regular safflower meal commands a higher price than urea-carbohydrate combinations because it does not have the stringent feeding restrictions of urea.

Economic reasons for not using safflower meal are (1) the prejudice of some dairy farmers against it because of the use of safflower oil in margarine, (2) the availability from only a few oilseed processors, (3) small feed mills limit the number of ingredients used due to their lack of storage facilities, and (4) the high lignin fiber content increases the cost of energy and total digestible nutrients even though its primary purpose in the ration is as a protein source.

## Market Potential for Safflower Meal

Demand for safflower meal in the future should increase because of (1) the technological advantages of partially hulled safflower meal over cottonseed meal, and (2) fewer feeding restrictions than for nonprotein nitrogen. Safflower meal demand will increase if less cottonseed meal is available in the California-Arizona

area. An increased volume of formula feed sales and a stable price of safflower meal will also increase its demand.

An increasingly important market for relatively low-fiber, high-protein oilseed meal is feed for monogastric animals such as poultry and swine, which cannot utilize nonprotein nitrogen but can tolerate some fiber. Many nutritionists expect the lower cost nonprotein nitrogen products, such as urea, to dominate the protein market in ruminant feeds in the future. This points to the need for developing low-fiber, high-protein safflower meal products, such as partially hulled safflower meal. Several feed manufacturers indicated that in the next few years they expect to increase their use of partially hulled safflower meal.

A partially hulled safflower meal could sell for a half cent per pound (\$10 a ton) above cottonseed meal and still increase its market in mixed feeds. The main reservation feedmen had toward boosting usage of partially hulled safflower meal was its availability.

### Modifications

The safflower meal property most needing modification is its relatively high fiber content. Possible solutions are to (1) develop improved hulling methods, (2) breed improved thin-hulled varieties, and (3) make nutrients in the fiber available to monogastric animals, for example, through breaking down the cellulosic fiber by chemical reaction, or using enzymes to turn this material into digestible materials, such as sugars.

A second property modification is an increase in the energy content, such as, by adding some fat to the meal. Another improvement needed is a higher protein level, especially protein with a higher lysine content. Feedmen favored removal of the bitter flavor of safflower meal through plant breeding or a debittering process rather than masking it with molasses or flavoring materials as is presently done when it is used at high levels in cattle

rations. It was also suggested that regular safflower meal should be ground finer to improve its appearance and make better pellets (less breakage). The removal of most of the hulls from regular safflower meal improves or corrects many of the characteristics of safflower meal to which feedmen object.

### Safflower Hull Markets

The hull constitutes a relatively large proportion (40 percent) of the safflower seed. By comparison, hulls are about 25 percent of cottonseed and about 8 percent of soybeans. Hulls of currently grown commercial varieties of safflower seed are extremely tough, high in lignin, and largely undigestible even by ruminant animals. Usually safflower hulls are reground and used as a filler in cattle and horse feeds. On occasions when the protein content of regular safflower meal is above the 20 percent basis on which it is usually sold, processors may market safflower hulls by blending them in with the regular safflower meal.

Processors have at times sold safflower hulls for \$10 a ton or more for use as a feed ingredient. At other times, the hulls were difficult to sell and were even given away. Safflower hulls do not make a good bedding material for animals because they are not very absorptive. They also are difficult to burn because of their high silica content (60 to 70 percent).

Since the brightest future of safflower meal appears to lie in raising its protein level, and partial dehulling is one method, the disposal problem of hulls may become greater. Of course, the development of a good thin-hulled commercially grown variety could lessen the problem.

Technological research is needed to discover other uses for safflower hulls. Possible research areas are as (1) a filler in concrete, (2) a decorative construction material, (3) a filler in impregnated pipe, (4) a filler in reinforced plastics, (5) a glue extender, and (6) an abrasive in polishing applications.

Table 14--Feed grains: Domestic disappearance and exports, by quarters,  
United States, 1964-71

| Year<br>beginning<br>October  | October-December   |          | January-March      |          | April-June         |          | July-September     |          | Total<br>October-September |          |
|-------------------------------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|----------------------------|----------|
|                               | Domestic           | Exports  | Domestic           | Exports  | Domestic           | Exports  | Domestic           | Exports  | Domestic                   | Exports  |
|                               | disap-<br>pearance | 1/<br>1/ | disap-<br>pearance | 1/<br>1/ | disap-<br>pearance | 1/<br>1/ | disap-<br>pearance | 1/<br>1/ | disap-<br>pearance         | 1/<br>1/ |
| Million bushels               |                    |          |                    |          |                    |          |                    |          |                            |          |
| CORN                          |                    |          |                    |          |                    |          |                    |          |                            |          |
| Average<br>1964-68            | 1,088              | 166      | 962                | 129      | 853                | 140      | 768                | 148      | 3,671                      | 583      |
| 1965                          | 994                | 197      | 1,007              | 171      | 903                | 177      | 801                | 142      | 3,705                      | 687      |
| 1966                          | 1,141              | 140      | 837                | 126      | 865                | 107      | 805                | 114      | 3,648                      | 487      |
| 1967                          | 1,143              | 183      | 895                | 158      | 899                | 129      | 852                | 163      | 3,789                      | 633      |
| 1968                          | 1,165              | 158      | 1,121              | 71       | 839                | 134      | 782                | 173      | 3,907                      | 536      |
| 1969 2/                       | 1,193              | 186      | 1,187              | 139      | 935                | 133      | 771                | 154      | 4,086                      | 612      |
| 1970 2/                       | 1,212              | 156      | 1,093              | 120      |                    |          |                    |          |                            |          |
| GRAIN SORGHUM                 |                    |          |                    |          |                    |          |                    |          |                            |          |
| Average<br>1964-68            | 210                | 47       | 184                | 46       | 120                | 40       | 46                 | 54       | 560                        | 187      |
| 1965                          | 211                | 50       | 181                | 73       | 129                | 62       | 61                 | 81       | 582                        | 266      |
| 1966                          | 210                | 75       | 230                | 65       | 132                | 59       | 42                 | 49       | 614                        | 248      |
| 1967                          | 212                | 55       | 168                | 48       | 128                | 21       | 37                 | 42       | 545                        | 166      |
| 1968                          | 256                | 28       | 186                | 16       | 137                | 20       | 56                 | 42       | 635                        | 106      |
| 1969 2/                       | 312                | 29       | 153                | 33       | 144                | 15       | 54                 | 49       | 663                        | 126      |
| 1970 2/                       | 277                | 51       | 203                | 52       |                    |          |                    |          |                            |          |
| OATS                          |                    |          |                    |          |                    |          |                    |          |                            |          |
| Average<br>1964-68            | 149                | 5        | 224                | 2        | 182                | 4        | 279                | 5        | 834                        | 16       |
| 1965                          | 144                | 13       | 226                | 2        | 207                | 13       | 275                | 9        | 852                        | 37       |
| 1966                          | 166                | 7        | 220                | 1        | 170                | 3        | 272                | 5        | 828                        | 16       |
| 1967                          | 129                | 1        | 207                | 2        | 171                | 2        | 272                | 3        | 779                        | 8        |
| 1968                          | 151                | 2        | 232                | 1        | 176                | 2        | 300                | 2        | 859                        | 7        |
| 1969 2/                       | 138                | 1        | 211                | 1        | 183                | 1        | 300                | 2        | 832                        | 5        |
| 1970 2/                       | 169                | 15       | 212                | 1        |                    |          |                    |          |                            |          |
| BARLEY                        |                    |          |                    |          |                    |          |                    |          |                            |          |
| Average<br>1964-68            | 79                 | 13       | 87                 | 7        | 77                 | 13       | 102                | 10       | 345                        | 43       |
| 1965                          | 68                 | 22       | 93                 | 15       | 67                 | 23       | 95                 | 15       | 323                        | 75       |
| 1966                          | 88                 | 10       | 81                 | 7        | 75                 | 13       | 102                | 13       | 346                        | 43       |
| 1967                          | 75                 | 7        | 76                 | 9        | 81                 | 2        | 105                | 3        | 337                        | 21       |
| 1968                          | 83                 | 4        | 88                 | 1        | 81                 | 5        | 121                | 1        | 373                        | 11       |
| 1969 2/                       | 82                 | 1        | 95                 | 3/       | 84                 | 15       | 140                | 23       | 401                        | 39       |
| 1970 2/                       | 93                 | 17       | 100                | 22       |                    |          |                    |          |                            |          |
| TOTAL (Million tons) 4 GRAINS |                    |          |                    |          |                    |          |                    |          |                            |          |
| Average<br>1964-68            | 40.6               | 6.4      | 37.8               | 5.0      | 32.0               | 5.4      | 29.7               | 6.0      | 140.1                      | 22.8     |
| 1965                          | 37.7               | 7.7      | 39.1               | 7.2      | 33.8               | 7.5      | 30.8               | 6.7      | 141.4                      | 29.1     |
| 1966                          | 42.6               | 6.4      | 35.3               | 5.5      | 32.4               | 5.0      | 30.5               | 5.0      | 140.8                      | 21.9     |
| 1967                          | 41.8               | 6.8      | 34.9               | 6.0      | 33.4               | 4.3      | 31.8               | 5.9      | 141.9                      | 23.0     |
| 1968                          | 44.2               | 5.3      | 42.4               | 2.5      | 32.1               | 4.4      | 31.2               | 6.2      | 149.9                      | 18.4     |
| 1969 2/                       | 46.3               | 6.1      | 43.2               | 4.8      | 35.2               | 4.5      | 31.2               | 6.3      | 155.9                      | 21.7     |
| 1970 2/                       | 46.6               | 6.4      | 42.1               | 5.3      |                    |          |                    |          |                            |          |

1/ Includes grain equivalent of products. 2/ Preliminary. 3/ Less than 500,000 bushels.

Table 15.--Feed grains: Base acreage on signed and participating farms and acreage diverted, 1964-71

| Crop | CORN            |                        |                                |            |                                          | GRAIN SORGHUM   |                        |                                |            |                                          |
|------|-----------------|------------------------|--------------------------------|------------|------------------------------------------|-----------------|------------------------|--------------------------------|------------|------------------------------------------|
|      | Base acreage:   |                        |                                |            |                                          | Base acreage:   |                        |                                |            |                                          |
|      | On signed farms | On participating farms | Acreage diverted <sup>1/</sup> |            |                                          | On signed farms | On participating farms | Acreage diverted <sup>1/</sup> |            |                                          |
|      | Mil. acres      | Mil. acres             | % of acreage on signed farms   | Mil. acres | % of base acreage on participating farms | Mil. acres      | Mil. acres             | % of acreage on signed farms   | Mil. acres | % of base acreage on participating farms |
| 1964 | 51.0            | 49.2                   | 96.5                           | 22.2       | 45.1                                     | 16.3            | 15.5                   | 95.1                           | 6.5        | 41.9                                     |
| 1965 | 56.2            | 54.0                   | 96.1                           | 24.0       | 44.4                                     | 18.2            | 17.2                   | 94.5                           | 7.0        | 40.7                                     |
| 1966 | 53.5            | 51.1                   | 95.9                           | 23.7       | 46.4                                     | 18.3            | 17.1                   | 93.4                           | 7.3        | 42.7                                     |
| 1967 | 51.8            | 49.5                   | 95.6                           | 16.2       | 32.7                                     | 18.3            | 16.9                   | 92.3                           | 4.1        | 24.3                                     |
| 1968 | 58.0            | 55.2                   | 95.2                           | 25.4       | 46.0                                     | 18.6            | 16.9                   | 90.9                           | 7.0        | 41.4                                     |
| 1969 | 61.3            | 58.8                   | 95.9                           | 27.2       | 46.3                                     | 19.5            | 17.8                   | 91.3                           | 7.5        | 42.1                                     |
| 1970 | 59.9            | 57.4                   | 95.8                           | 26.1       | 45.5                                     | 19.4            | 17.8                   | 91.8                           | 7.4        | 41.6                                     |
| 1971 | 72.1            |                        |                                |            |                                          | 21.3            |                        |                                |            |                                          |
|      | BARLEY          |                        |                                |            |                                          | TOTAL           |                        |                                |            |                                          |
|      |                 |                        |                                |            |                                          |                 |                        |                                |            |                                          |
|      |                 |                        |                                |            |                                          |                 |                        |                                |            |                                          |
|      |                 |                        |                                |            |                                          |                 |                        |                                |            |                                          |
| 1964 | 10.2            | 8.8                    | 86.3                           | 3.7        | 42.0                                     | 77.5            | 73.5                   | 94.8                           | 32.4       | 44.1                                     |
| 1965 | 12.1            | 11.5                   | 95.0                           | 3.7        | 32.2                                     | 86.5            | 82.7                   | 95.6                           | 34.7       | 42.0                                     |
| 1966 | 12.0            | 10.8                   | 90.0                           | 3.7        | 34.3                                     | 83.6            | 79.0                   | 94.5                           | 34.7       | 43.9                                     |
| 1967 | 2/              | 2/                     | 2/                             | 2/         | 2/                                       | 70.1            | 66.4                   | 94.7                           | 20.3       | 30.6                                     |
| 1968 | 2/              | 2/                     | 2/                             | 2/         | 2/                                       | 76.6            | 72.1                   | 94.1                           | 32.4       | 44.9                                     |
| 1969 | 13.2            | 11.9                   | 90.2                           | 4.4        | 37.0                                     | 94.0            | 88.5                   | 94.1                           | 39.1       | 44.2                                     |
| 1970 | 13.2            | 12.1                   | 91.7                           | 3.9        | 32.2                                     | 92.5            | 87.3                   | 94.4                           | 37.4       | 42.8                                     |
| 1971 | 2/              |                        |                                |            |                                          | 93.4            |                        |                                |            |                                          |

<sup>1/</sup> Does not include acreage in the Soil Bank Program. <sup>2/</sup> No provision for diversion.

Table 16.--Feed grains: Production and quantities placed under price support, United States, 1961-70

| Crop<br>of | Feed<br>grain<br>produc-<br>tion | Quantity placed under price support <u>1/</u> |                  |             |             |              | Delivered to CCC <u>2/</u>     |              |                                                      |
|------------|----------------------------------|-----------------------------------------------|------------------|-------------|-------------|--------------|--------------------------------|--------------|------------------------------------------------------|
|            |                                  | Corn                                          | Grain<br>sorghum | Oats        | Barley      | Total        | Percentage<br>of<br>production | Total        | Percentage<br>of quantity<br>placed under<br>support |
|            |                                  |                                               |                  |             |             |              |                                |              |                                                      |
|            | Mil.<br>tons                     | Mil.<br>bu.                                   | Mil.<br>bu.      | Mil.<br>bu. | Mil.<br>bu. | Mil.<br>tons | Percent                        | Mil.<br>tons | Percent                                              |
| 1961       | : 139.8                          | 658.6                                         | 196.3            | 20.6        | 44.2        | 25.3         | 18                             | 23.7         | 94                                                   |
| 1962       | : 141.7                          | 590.8                                         | 219.4            | 32.0        | 39.9        | 24.2         | 17                             | 19.9         | 82                                                   |
| 1963       | : 153.8                          | 395.3                                         | 141.4            | 38.9        | 28.2        | 16.3         | 11                             | 4.6          | 28                                                   |
| 1964       | : 134.2                          | 215.8                                         | 82.9             | 44.9        | 15.0        | 9.4          | 7                              | 2.8          | 30                                                   |
| 1965       | : 157.4                          | 214.9                                         | 106.0            | 43.9        | 16.5        | 10.1         | 6                              | 2.9          | 29                                                   |
| 1966       | : 157.6                          | 263.0                                         | 27.7             | 22.7        | 16.5        | 8.8          | 6                              | .5           | 6                                                    |
| 1967       | : 176.0                          | 497.0                                         | 65.3             | 37.2        | 48.2        | 17.5         | 10                             | 3/5.4        | 31                                                   |
| 1968       | : 168.9                          | 404.0                                         | 74.0             | 94.8        | 123.7       | 17.9         | 11                             | 3/3.0        | 17                                                   |
| 1969       | : 174.6                          | 398.0                                         | 42.0             | 162.6       | 52.5        | 16.2         | 9                              | ---          | ---                                                  |
| 1970       | : 159.0                          | 4/316.0                                       | 4/30.4           | 4/106.7     | 4/27.2      | 4/12.1       | 8                              | ---          | ---                                                  |

<sup>1/</sup> Under loan and purchase agreement through 1963; beginning 1964 loan plus deliveries to CCC under purchase program. <sup>2/</sup> Includes deliveries from original program, the resale program and over-deliveries as determined by the final weight of grain. <sup>3/</sup> Assumes that much of the grain under resale will be redeemed by farmers. <sup>4/</sup> Through April 30. The loan period for oats and barley expired April 30; corn producers have through June 30 and sorghum grain producers through May 31 or June 30 to place these grains under loan.

Table 17.--Feed grains and hay: Production, farm disposition and value of sales, 1965-70

| Crop<br>year     | Production | Used on           | Sold 2/   |         | Season<br>average<br>price 2/ | Value<br>of<br>production | Value<br>of<br>sales 2/ |
|------------------|------------|-------------------|-----------|---------|-------------------------------|---------------------------|-------------------------|
|                  |            | farms             | Quantity  | Percent |                               |                           |                         |
|                  |            | where<br>grown 1/ |           |         |                               |                           |                         |
|                  | Mil. bu.   | Mil. bu.          | Mil. bu.  | Pct.    | Dol. per bu.                  | Mil. dol.                 | Mil. dol.               |
| CORN, grain only |            |                   |           |         |                               |                           |                         |
| 1965             | 4,084      | 2,077             | 2,007     | 49      | 1.16                          | 4,732                     | 2,327                   |
| 1966             | 4,117      | 2,038             | 2,079     | 50      | 1.24                          | 5,106                     | 2,579                   |
| 1967             | 4,760      | 2,223             | 2,537     | 53      | 1.03                          | 4,940                     | 2,626                   |
| 1968             | 4,393      | 2,066             | 2,327     | 53      | 1.08                          | 4,763                     | 2,523                   |
| 1969             | 4,583      | 2,081             | 2,501     | 55      | 1.15                          | 5,290                     | 2,889                   |
| 1970 3/          | 4,110      | 1,868             | 2,242     | 55      | 1.36                          | 5,603                     | 3,057                   |
| SORGHUM GRAIN    |            |                   |           |         |                               |                           |                         |
| 1965             | 673        | 148               | 524       | 78      | 1.00                          | 668                       | 524                     |
| 1966             | 715        | 133               | 582       | 81      | 1.02                          | 730                       | 593                     |
| 1967             | 756        | 152               | 604       | 80      | .992                          | 745                       | 599                     |
| 1968             | 740        | 141               | 598       | 81      | .950                          | 699                       | 568                     |
| 1969             | 747        | 160               | 587       | 79      | 1.07                          | 791                       | 627                     |
| 1970 3/          | 697        | 142               | 555       | 80      | 1.14                          | 792                       | 632                     |
| OATS             |            |                   |           |         |                               |                           |                         |
| 1965             | 927        | 613               | 314       | 34      | .622                          | 585                       | 195                     |
| 1966             | 801        | 526               | 275       | 34      | .665                          | 538                       | 183                     |
| 1967             | 789        | 523               | 266       | 34      | .659                          | 525                       | 175                     |
| 1968             | 939        | 586               | 353       | 38      | .598                          | 569                       | 211                     |
| 1969             | 950        | 578               | 372       | 39      | .586                          | 565                       | 218                     |
| 1970 3/          | 909        | 558               | 352       | 39      | .628                          | 582                       | 221                     |
| BARLEY           |            |                   |           |         |                               |                           |                         |
| 1965             | 392        | 93                | 300       | 77      | 1.02                          | 395                       | 304                     |
| 1966             | 393        | 104               | 290       | 74      | 1.05                          | 408                       | 304                     |
| 1967             | 373        | 104               | 269       | 72      | 1.00                          | 369                       | 268                     |
| 1968             | 423        | 109               | 314       | 74      | .911                          | 382                       | 286                     |
| 1969             | 424        | 114               | 310       | 73      | .872                          | 369                       | 270                     |
| 1970 3/          | 410        | 113               | 298       | 73      | .956                          | 388                       | 284                     |
| 4 FEED GRAINS    |            |                   |           |         |                               |                           |                         |
|                  | Mil. tons  | Mil. tons         | Mil. tons | Pct.    | Dol. per ton                  | Mil. dol.                 | Mil. dol.               |
| 1965             | 157.4      | 74.3              | 83.1      | 53      | ---                           | 6,380                     | 3,350                   |
| 1966             | 157.6      | 71.7              | 85.9      | 55      | ---                           | 6,782                     | 3,659                   |
| 1967             | 176.0      | 77.4              | 98.7      | 56      | ---                           | 6,579                     | 3,668                   |
| 1968             | 168.9      | 73.8              | 95.1      | 56      | ---                           | 6,413                     | 3,588                   |
| 1969             | 174.6      | 74.7              | 99.9      | 57      | ---                           | 7,015                     | 4,004                   |
| 1970 3/          | 159.0      | 67.9              | 91.1      | 57      | ---                           | 7,365                     | 4,194                   |
| HAY              |            |                   |           |         |                               |                           |                         |
| 1965             | 125.5      | 102.4             | 23.1      | 18      | 23.20                         | 2,913                     | 534                     |
| 1966             | 121.0      | 98.8              | 22.2      | 18      | 25.00                         | 2,892                     | 557                     |
| 1967             | 126.3      | 103.2             | 23.1      | 18      | 24.50                         | 2,897                     | 568                     |
| 1968             | 125.5      | 102.0             | 23.5      | 19      | 23.60                         | 2,855                     | 555                     |
| 1969             | 127.7      | 103.9             | 23.8      | 19      | 24.70                         | 2,984                     | 587                     |
| 1970 3/          | 127.9      | 103.1             | 24.8      | 19      | 26.00                         | 3,101                     | 645                     |

1/ Used for feed and seed on farms where grown. 2/ Includes an allowance for unredeemed loan and purchase agreement deliveries of feed grains valued at the average loan rate, by States.

3/ Preliminary.

Table 18.--Feed grain stocks: Quarterly distribution, 1967-71

| Year           | Farm             | Commodity<br>Credit<br>Corporation <u>1/</u> | Terminal market,<br>mill, elevator<br>and warehouse | Total     | Farm                | Commodity<br>Credit<br>Corporation <u>1/</u> | Terminal market,<br>mill, elevator<br>and warehouse | Total     |
|----------------|------------------|----------------------------------------------|-----------------------------------------------------|-----------|---------------------|----------------------------------------------|-----------------------------------------------------|-----------|
| 1,000 bushels  |                  |                                              |                                                     |           |                     |                                              |                                                     |           |
| CORN           |                  |                                              |                                                     |           |                     |                                              |                                                     |           |
|                | January 1        |                                              |                                                     |           | April 1             |                                              |                                                     |           |
| 1967           | 2,898,768        | 108,491                                      | 670,128                                             | 3,677,387 | 2,043,897           | 98,279                                       | 572,811                                             | 2,714,987 |
| 1968           | 3,391,263        | 97,846                                       | 768,215                                             | 4,257,324 | 2,394,728           | 97,870                                       | 712,076                                             | 3,204,674 |
| 1969           | 3,276,322        | 149,156                                      | 807,894                                             | 4,233,372 | 2,223,680           | 148,992                                      | 668,236                                             | 3,040,908 |
| 1970           | 3,323,278        | 144,243                                      | 848,894                                             | 4,316,415 | 2,223,238           | 135,285                                      | 632,542                                             | 2,991,065 |
| 1971 <u>2/</u> | 2,729,548        | 97,366                                       | 916,113                                             | 3,743,027 | 1,860,980           | 59,196                                       | 611,034                                             | 2,531,210 |
|                | July 1           |                                              |                                                     |           | October 1 <u>3/</u> |                                              |                                                     |           |
| 1967           | 1,337,292        | 97,690                                       | 307,993                                             | 1,742,975 | 569,155             | 97,571                                       | 156,504                                             | 823,230   |
| 1968           | 1,646,440        | 97,785                                       | 432,793                                             | 2,177,018 | 781,762             | 103,312                                      | 277,181                                             | 1,162,255 |
| 1969           | 1,486,739        | 145,982                                      | 435,674                                             | 2,068,395 | 728,220             | 143,319                                      | 241,855                                             | 1,113,394 |
| 1970 <u>2/</u> | 1,403,519        | 117,822                                      | 401,740                                             | 1,923,081 | 569,390             | 111,287                                      | 318,306                                             | 998,983   |
| SORGHUM GRAIN  |                  |                                              |                                                     |           |                     |                                              |                                                     |           |
|                | January 1        |                                              |                                                     |           | April 1             |                                              |                                                     |           |
| 1967           | 234,168          | 4,632                                        | 582,240                                             | 821,040   | 133,178             | 4,624                                        | 388,688                                             | 526,490   |
| 1968           | 213,026          | 4,572                                        | 514,769                                             | 732,367   | 142,130             | 4,586                                        | 370,321                                             | 517,037   |
| 1969           | 221,739          | 4,600                                        | 518,764                                             | 745,103   | 129,823             | 4,598                                        | 408,768                                             | 543,189   |
| 1970           | 191,147          | 4,581                                        | 498,925                                             | 694,653   | 122,103             | 4,577                                        | 381,318                                             | 507,998   |
| 1971 <u>2/</u> | 155,254          | 4,602                                        | 454,464                                             | 614,320   | 90,834              | 3,169                                        | 264,861                                             | 358,864   |
|                | July 1           |                                              |                                                     |           | October 1 <u>3/</u> |                                              |                                                     |           |
| 1967           | 81,980           | 4,606                                        | 248,947                                             | 335,533   | 44,414              | 4,598                                        | 194,888                                             | 243,900   |
| 1968           | 90,719           | 4,587                                        | 272,821                                             | 368,127   | 58,145              | 4,586                                        | 226,362                                             | 289,093   |
| 1969           | 83,816           | 4,583                                        | 297,908                                             | 386,307   | 53,206              | 4,583                                        | 230,457                                             | 288,246   |
| 1970 <u>2/</u> | 70,251           | 5,230                                        | 273,688                                             | 349,169   | 40,606              | 5,258                                        | 199,977                                             | 245,841   |
| OATS           |                  |                                              |                                                     |           |                     |                                              |                                                     |           |
|                | January 1        |                                              |                                                     |           | April 1             |                                              |                                                     |           |
| 1967           | 556,765          | 7,232                                        | 97,878                                              | 661,875   | 354,567             | 6,864                                        | 81,031                                              | 442,462   |
| 1968           | 546,803          | 6,668                                        | 97,710                                              | 653,181   | 361,671             | 6,665                                        | 76,869                                              | 445,205   |
| 1969           | 660,692          | 6,656                                        | 116,571                                             | 783,919   | 442,820             | 6,650                                        | 102,727                                             | 552,197   |
| 1970           | 724,299          | 7,965                                        | 153,021                                             | 885,285   | 529,357             | 7,914                                        | 136,730                                             | 674,001   |
| 1971 <u>2/</u> | 703,782          | 11,370                                       | 199,401                                             | 914,553   | 503,531             | 11,305                                       | 186,928                                             | 701,764   |
|                | July 1 <u>3/</u> |                                              |                                                     |           | October 1           |                                              |                                                     |           |
| 1967           | 198,940          | 6,664                                        | 64,682                                              | 270,286   | 646,183             | 6,674                                        | 128,996                                             | 781,853   |
| 1968           | 206,173          | 6,668                                        | 59,843                                              | 272,684   | 782,012             | 6,658                                        | 147,997                                             | 936,667   |
| 1969           | 275,218          | 6,664                                        | 93,285                                              | 375,167   | 830,755             | 7,884                                        | 185,844                                             | 1,024,483 |
| 1970 <u>2/</u> | 344,679          | 8,032                                        | 137,780                                             | 490,491   | 851,782             | 11,318                                       | 234,682                                             | 1,097,782 |
| BARLEY         |                  |                                              |                                                     |           |                     |                                              |                                                     |           |
|                | January 1        |                                              |                                                     |           | April 1             |                                              |                                                     |           |
| 1967           | 179,138          | 4,786                                        | 110,440                                             | 294,364   | 114,921             | 4,523                                        | 87,717                                              | 207,161   |
| 1968           | 184,640          | 3,902                                        | 114,637                                             | 303,179   | 129,092             | 3,946                                        | 85,320                                              | 218,358   |
| 1969           | 247,666          | 3,916                                        | 119,982                                             | 371,564   | 183,783             | 3,917                                        | 95,117                                              | 282,817   |
| 1970           | 264,586          | 4,915                                        | 157,236                                             | 426,737   | 198,512             | 4,906                                        | 128,693                                             | 332,111   |
| 1971 <u>2/</u> | 238,931          | 5,132                                        | 137,060                                             | 381,123   | 142,346             | 5,081                                        | 111,854                                             | 259,281   |
|                | July 1 <u>3/</u> |                                              |                                                     |           | October 1           |                                              |                                                     |           |
| 1967           | 56,974           | 4,240                                        | 60,558                                              | 121,772   | 232,580             | 4,030                                        | 144,870                                             | 381,480   |
| 1968           | 71,524           | 3,944                                        | 62,200                                              | 137,668   | 303,093             | 3,931                                        | 147,208                                             | 454,232   |
| 1969           | 114,875          | 3,927                                        | 80,682                                              | 199,484   | 314,135             | 4,991                                        | 185,803                                             | 504,929   |
| 1970 <u>2/</u> | 136,699          | 4,892                                        | 95,414                                              | 237,005   | 305,606             | 5,304                                        | 178,529                                             | 489,439   |

1/ CCC owned at binsites; excludes grain owned by CCC in other positions. 2/ Preliminary. 3/ Old crop grain only.

Table 19.--Production, stocks, and foreign trade in processed feeds, foreign trade in feed grains, and corn and barley processing, specified months 1/

| Commodity                               | Production |          |          |         |                                | Stocks 2/  |        |        |        |        |
|-----------------------------------------|------------|----------|----------|---------|--------------------------------|------------|--------|--------|--------|--------|
|                                         | 1970       |          |          |         |                                | 1971       |        |        |        |        |
|                                         | Mar.       | Dec.     | Jan.     | Feb.    | Mar.                           | Apr. 1     | Jan. 1 | Feb. 1 | Mar. 1 | Apr. 1 |
|                                         | 1,000 tons |          |          |         |                                | 1,000 tons |        |        |        |        |
| <b>Processed feeds</b>                  |            |          |          |         |                                |            |        |        |        |        |
| Soybean meal                            | 1,489.4    | 1,606.0  | 1,605.4  | 1,431.6 | 1,507.4                        | 149.8      | 129.7  | 185.5  | 189.3  | 153.3  |
| Cottonseed meal                         | 197.7      | 218.2    | 215.8    | 202.4   | 192.4                          | 146.0      | 85.8   | 103.2  | 125.5  | 136.7  |
| Linseed meal                            | 18.2       | 25.0     | 28.6     | 28.5    | 30.7                           | 4.2        | 3/     | 9.2    | 15.1   | 20.7   |
| Peanut meal                             | 15.7       | 16.9     | 17.1     | 16.2    | 18.0                           | 4.7        | 3.8    | 4.2    | 4.7    | 7.2    |
| Meat meal and tankage                   | 154.3      | 179.1    | 167.2    | 157.5   | 174.4                          | ---        | ---    | ---    | ---    | ---    |
| Fish meal and solubles                  | 6.4        | 9.2      | 5.6      | 4.1     | 4.9                            | ---        | ---    | ---    | ---    | ---    |
| Brewers' dried grains                   | 30.2       | 27.2     | 26.8     | 24.9    | 32.1                           | 5.5        | 5.3    | 5.3    | 5.1    | 4.7    |
| Distillers' dried grains                | 36.3       | 33.5     | 33.7     | 35.6    | 36.3                           | 4.1        | 1.7    | 1.6    | 2.4    | 1.7    |
| Wheat millfeeds                         | 372.0      | 361.2    | 361.3    | 344.8   | 363.3                          | ---        | ---    | ---    | ---    | ---    |
| Rice millfeeds                          | 35.4       | 36.8     | 35.5     | 34.9    | 40.7                           | ---        | ---    | ---    | ---    | ---    |
| Alfalfa meal, dehydrated                | 20.4       | 11.5     | 12.2     | 12.3    | 23.5                           | 197.1      | 518.9  | 385.2  | 227.0  | 144.0  |
| sun-cured                               | 30.1       | 30.1     | 29.4     | 27.2    | 22.3                           | 13.8       | 12.2   | 8.7    | 10.6   | 8.4    |
| Total                                   | 50.5       | 41.6     | 41.6     | 39.5    | 45.8                           | 210.9      | 531.1  | 393.9  | 237.6  | 152.4  |
| Inedible tallow                         | 43.8       | 49.0     | 45.1     | 42.2    | 51.6                           | ---        | ---    | ---    | ---    | ---    |
| <b>Foreign trade</b>                    |            |          |          |         |                                |            |        |        |        |        |
| <b>Exports</b>                          |            |          |          |         | <b>Imports</b>                 |            |        |        |        |        |
| 1970                                    |            |          |          |         | 1970                           |            |        |        |        |        |
| Mar.                                    | Dec.       | Jan.     | Feb.     | Mar.    | Mar.                           | Dec.       | Jan.   | Feb.   | Mar.   |        |
| 1,000 tons                              |            |          |          |         | 1,000 tons                     |            |        |        |        |        |
| Soybean meal                            | 310.5      | 353.0    | 438.7    | 310.2   | 413.0                          | ---        | ---    | ---    | ---    | ---    |
| Cottonseed meal                         | 1.2        | .1       | 2.2      | 11.1    | 5.6                            | 0          | 0      | 0      | 0      | 0      |
| Linseed meal                            | 0          | 8.4      | 0        | 0       | .1                             | .1         | .2     | .1     | .1     | .1     |
| Other oilseed meals                     | 4.9        | 7.5      | 12.5     | 11.1    | 7.1                            | 4/         | .1     | .1     | 0      | 0      |
| Fish meal                               | ---        | ---      | ---      | ---     | ---                            | 19.5       | 22.3   | 33.3   | 15.8   | 13.3   |
| Molasses                                | 2.6        | .5       | .7       | 1.1     | .1                             | 263.2      | 241.1  | 187.0  | 107.8  | 269.0  |
| Corn byproducts                         | 45.5       | 36.8     | 27.7     | 30.7    | 41.0                           | ---        | ---    | ---    | ---    | ---    |
| Wheat millfeeds                         | 0          | 4.3      | .1       | 1.2     | 1.2                            | 10.4       | 10.2   | 18.2   | 10.6   | 15.5   |
| Alfalfa meal, dehydrated                | 21.0       | 12.3     | 18.9     | 38.9    | 26.8                           | ---        | ---    | ---    | ---    | ---    |
| sun-cured                               | 22.4       | 13.9     | 12.2     | 39.5    | 14.5                           | ---        | ---    | ---    | ---    | ---    |
| Total                                   | 43.4       | 26.2     | 31.1     | 78.4    | 41.3                           | ---        | ---    | ---    | ---    | ---    |
| Mixed poultry feed                      | 10.4       | 13.0     | 10.3     | 12.0    | 13.5                           | ---        | ---    | ---    | ---    | ---    |
| Mixed dairy feed                        | 14.2       | 5.7      | 16.9     | 17.8    | 16.9                           | ---        | ---    | ---    | ---    | ---    |
| <b>Feed grains (including products)</b> |            |          |          |         | <b>Grain processing or use</b> |            |        |        |        |        |
| 1,000 bushels                           |            |          |          |         | 1970                           |            |        |        |        |        |
| Corn                                    | 46,118     | 50,269   | 40,241   | 44,426  | 35,260                         | 61         | 1,855  | 245    | 172    | 309    |
| Grain sorghum                           | 7,078      | 19,467   | 18,716   | 18,626  | 14,963                         | 6          | 4      | 0      | 0      | 0      |
| Oats                                    | 388        | 1,265    | 286      | 505     | 216                            | 182        | 127    | 167    | 101    | 156    |
| Barley                                  | 122        | 6,324    | 5,932    | 8,656   | 7,574                          | 393        | 388    | 80     | 200    | 49     |
| Total (1,000 s. tons)                   | 1,499      | 2,125    | 1,798    | 1,981   | 1,591                          | 14         | 63     | 11     | 11     | 12     |
| <b>Grain processing or use</b>          |            |          |          |         |                                |            |        |        |        |        |
| 1970                                    |            |          |          |         | 1970/71                        |            |        |        |        |        |
| February                                | March      | November | December | January | February                       | March      |        |        |        |        |
| 1,000 bushels                           |            |          |          |         |                                |            |        |        |        |        |
| <b>Corn</b>                             |            |          |          |         |                                |            |        |        |        |        |
| Distilled spirits and alcohol           | 3,023      | 3,155    | 2,182    | 2,135   | 2,587                          | 2,444      |        |        |        | *      |
| <b>Grain sorghum</b>                    |            |          |          |         |                                |            |        |        |        |        |
| Distilled spirits and alcohol           | 210        | 240      | 375      | 353     | 268                            | 283        |        |        |        | *      |
| <b>Barley</b>                           |            |          |          |         |                                |            |        |        |        |        |
| Malt liquors                            | 7,648      | 9,654    | 7,481    | 7,891   | 7,709                          | 7,590      |        |        | 10,404 |        |
| Distilled liquors and alcohol           | 599        | 615      | 415      | 406     | 499                            | 460        |        |        |        | *      |

1/ Data compiled from reports of the Bureau of the Census, Consumer and Marketing Service, National Marine Fisheries Service, U.S. Department of Commerce. 2/ At processors' plants. 3/ Not reported. 4/ Less than 50 tons. \* Not yet available.

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FdS-239

MAY 1971

INDEX OF TABLES

|                                                                                                                     | <i>Table</i> | <i>Page</i> |
|---------------------------------------------------------------------------------------------------------------------|--------------|-------------|
| Supplies, Utilization and Livestock Units:                                                                          |              |             |
| Feed concentrate balance, total and per animal unit, 1964-70 . . . . .                                              | 6            | 15          |
| Feed concentrates consumed by livestock, semiannually, 1964-70 . . . . .                                            | 7            | 15          |
| Feed grains: Supply and utilization, 1964-70 . . . . .                                                              | 2            | 5           |
| Corn and sorghum grain: Supply and utilization, 1964-70 . . . . .                                                   | 4            | 7           |
| Oats and barley: Supply and Utilization, 1964-70 . . . . .                                                          | 5            | 13          |
| Feed grains: Domestic disappearance and exports, by quarters, 1964-71 . . . . .                                     | 14           | 23          |
| Feed grains and hay: Production, disposition, and sales, 1965-70 . . . . .                                          | 17           | 25          |
| Individual feeds as a percentage of the total concentrate ration fed to milk cows, 1956-70 . . . . .                | 8            | 16          |
| Grain and other concentrates fed to milk cows, 1956-70 . . . . .                                                    | 9            | 16          |
| High-protein feeds: Quantity fed per animal unit, 1950-70 . . . . .                                                 | 10           | 18          |
| Oilmeal: Supply and distribution, 1968-70 . . . . .                                                                 | 12-13        | 19          |
| Processed feeds: Estimated use for feed, 1964-70 . . . . .                                                          | 11           | 18          |
| Byproduct feeds and feed grains: Production, stocks, foreign trade, grain processing,<br>specified months . . . . . | 19           | 27          |
| Prices and Price Ratios:                                                                                            |              |             |
| Statistical summary: Prices, indexes and price ratios . . . . .                                                     | 1            | 2           |
| Government Programs and Price Support Operations:                                                                   |              |             |
| Feed grains: Base acreage on signed farms and acreage diverted, 1964-71 . . . . .                                   | 15           | 24          |
| Feed grains: Production and quantities placed under price support, 1961-70 . . . . .                                | 16           | 24          |
| Stocks:                                                                                                             |              |             |
| Feed grain stocks: Government and "free", April 1, 1970 and 1971 . . . . .                                          | 3            | 5           |
| Feed grain stocks: Quarterly distribution, 1967 to date . . . . .                                                   | 18           | 26          |